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WAR DEPARTMENT

U.S. Dept. of Army

TECHNICAL MANUAL

TABLES OF VERTICAL AND HORIZONTAL COMPONENTS OF DISTANCES OF PILOT BALLOONS

August 7 1941

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TECHNICAL MANUAL
No. 11-420

WAR DEPARTMENT,
WASHINGTON, August 7, 1941.

TABLES OF VERTICAL AND HORIZONTAL COMPONENTS OF DISTANCES OF PILOT BALLOONS

Prepared under direction of the
Chief Signal Officer

	Paragraph
Purpose	1
Vertical components of distances	2
Horizontal components of distances	3

1. Purpose.—These tables were prepared for the purpose of furnishing to the meteorological observer a simple method for determining the vertical and the horizontal components of the distance from the observing point to the pilot balloon at the end of each minute after the beginning of the ascension. The data contained in these tables are applicable only when one of the standard types of pilot balloons listed in paragraph 2*e* below is inflated in accord with the instructions given there.

2. Vertical components of distances.—*a.* The position of a pilot balloon in space, with reference to the starting point, at any instant after the ascension begins, may be described by stating the height of the balloon above the starting point and the direction and length of the horizontal component of the distance from the starting point to the balloon.

b. When a pilot balloon ascends in the free atmosphere, it seldom rises vertically but nearly always, as it rises, is carried away from a vertical path by the horizontal component of the motion of the air. The position of a balloon in space at any instant after the beginning of an ascension is due almost entirely, therefore, to the two major forces that are acting on the balloon; first, the force acting upward because the inflated balloon weighs less than the atmosphere that it displaces, and second, the force acting horizontally because the balloon is floating in an atmosphere that is moving horizontally and carrying the balloon along with it.

c. With a given force acting upward on a pilot balloon, the balloon will ascend faster in turbulent air than in still air. The air near the ground usually is more turbulent than the air at greater heights. Therefore, the rate of ascent of a pilot balloon nearly always is greatest

*This pamphlet supersedes Signal Corps Circular No. 8-14, April 15, 1936.

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near the ground and this rate decreases gradually with increase in height until an altitude of about 1,100 yards above the ground is reached. Above this level the rate of ascent of the balloon is approximately constant.

d. In order to simplify the computations involved in determining the position of a pilot balloon in space at the end of each minute after the beginning of an ascension, the pilot balloon is inflated with a sufficient amount of hydrogen gas to cause the balloon to ascend at the rate of 200 yards per minute after it is above the turbulent surface-air layer.

e. The standard types of rubber pilot balloons to which these tables apply are known as balloons ML–50, ML–51, ML–64, ML–155, and ML–156. These pilot balloons weigh approximately 1.06 ounces each, are about 6 inches in diameter when not inflated, and are capable of being inflated to a diameter of somewhat more than 30 inches before bursting. The standard practice is to inflate the balloon with a sufficient amount of hydrogen gas so that the balloon will support in equilibrium in the atmosphere a weight of 4.66 ounces, in addition to the weight of the balloon. If a standard pilot balloon is inflated as described above, the weight then removed, and the balloon released in the free atmosphere, it will ascend, on the average, at the rates shown below:

	Yards
During the first minute	240
During the second minute	220
During the third minute	220
During the fourth minute	210
During the fifth minute	210
During each subsequent minute	200

These rates of ascent are generally, but not always, correct to within 10 percent.

3. Horizontal components of distances.—*a.* The horizontal component of the distance from the observing point to the balloon is the distance that the balloon has moved in a horizontal direction while ascending to a particular height. As the balloon is free to move with the air, the horizontal movement of the balloon represents the average movement of the air layer between the observing point and the level of the balloon during the time the balloon was passing through this air layer. The horizontal component of the distance from the observing point to the balloon may be computed at any instant if the height of the balloon above the observing point and the elevation angle of the balloon as viewed through the theodolite are known. The height of the balloon may be determined from its rate of ascent as given in paragraph 2. The elevation angle of the

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balloon as viewed through the theodolite is determined by reading the elevation angle of the theodolite. The horizontal component of the distance in yards from the observing point to the balloon may be determined by multiplying the height of the balloon in yards by the natural cotangent of the angle of elevation of the balloon.

b. To avoid the necessity of performing this multiplication, the following tables have been included in this manual for determining the horizontal component of the distance from the observing point to the balloon during ascensions lasting for 30 minutes or less. In order to determine the horizontal component of the distance from the observing point to the balloon with these tables, it is merely necessary to turn to the page with the height of the balloon given at the top of the page and select the figure that is set under the angle of elevation of the balloon. For example, suppose it is desired to find the horizontal component of the distance from the observing point to the balloon at the end of the seventh minute, when the angle of elevation of the balloon is 37.8°. At the end of the seventh minute the balloon is 1,500 yards high. On page 16 of this manual under the elevation angle of 37.8° there will be found the figure 1,930. The horizontal component of the distance from the observing point to the balloon is therefore 1,930 yards.

c. To find the horizontal component of the distance from the observing point to the balloon when an ascension continues for more than 30 minutes, it will be necessary to multiply the elevation of the balloon in yards by the cotangent of the elevation angle. Suppose, for example, it is desired to determine the horizontal component of the distance from the observing point to the balloon at the end of the thirty-fifth minute when the angle of elevation of the balloon is 37.8°. The balloon is 7,100 yards high at the end of the thirty-fifth minute of the ascension. It will be necessary to multiply 7,100 by the cotangent of the angle of elevation of the balloon. A table of natural cotangents is included in this manual on pages 64 and 65. The natural cotangent of 37.8° is 1.2892. $7100 \times 1.2892 = 9153.3$. The horizontal component of the distance from the observing point to the balloon is therefore 9,153.3 yards, which is recorded as 9,150 yards. The data are recorded only to the nearest 10 yards.

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Horizontal Component of Distance of Pilot Balloon

1 minute after release of balloon; altitude of balloon, 240 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	2, 740	2, 690	2, 640	2, 590	2, 540	2, 490	2, 450	2, 400	2, 360	2, 320
6	2, 280	2, 250	2, 210	2, 170	2, 140	2, 110	2, 070	2, 040	2, 010	1, 980
7	1, 950	1, 930	1, 900	1, 870	1, 850	1, 820	1, 800	1, 780	1, 750	1, 730
8	1, 710	1, 690	1, 670	1, 650	1, 630	1, 610	1, 590	1, 570	1, 550	1, 530
9	1, 520	1, 500	1, 480	1, 470	1, 450	1, 430	1, 420	1, 400	1, 390	1, 380
10	1, 360	1, 350	1, 330	1, 320	1, 310	1, 290	1, 280	1, 270	1, 260	1, 250
11	1, 230	1, 220	1, 210	1, 200	1, 190	1, 180	1, 170	1, 160	1, 150	1, 140
12	1, 130	1, 120	1, 110	1, 100	1, 090	1, 080	1, 070	1, 060	1, 060	1, 050
13	1, 040	1, 030	1, 020	1, 020	1, 010	1, 000	990	980	980	970
14	960	960	950	940	930	930	920	910	910	900
15	900	890	880	880	870	870	860	850	850	840
16	840	830	830	820	820	810	810	800	790	790
17	790	780	780	770	770	760	760	750	750	740
18	740	730	730	730	720	720	710	710	700	700
19	700	690	690	690	680	680	670	670	670	660
20	660	660	650	650	650	640	640	640	630	630
21	630	620	620	620	610	610	610	600	600	600
22	590	590	590	590	580	580	580	570	570	570
23	570	560	560	560	550	550	550	550	540	540
24	540	540	530	530	530	530	520	520	520	520
25	510	510	510	510	510	500	500	500	500	490
26	490	490	490	490	480	480	480	480	480	470
27	470	470	470	460	460	460	460	460	460	450
28	450	450	450	450	440	440	440	440	440	430
29	430	430	430	430	430	420	420	420	420	420
30	420	410	410	410	410	410	410	400	400	400
31	400	400	400	390	390	390	390	390	390	390
32	380	380	380	380	380	380	380	370	370	370
33	370	370	370	370	360	360	360	360	360	360
34	360	350	350	350	350	350	350	350	350	340
35	340	340	340	340	340	340	340	330	330	330
36	330	330	330	330	330	320	320	320	320	320
37	320	320	320	320	310	310	310	310	310	310
38	310	310	300	300	300	300	300	300	300	300
39	300	300	290	290	290	290	290	290	290	290
40	290	280	280	280	280	280	280	280	280	280
41	280	280	270	270	270	270	270	270	270	270
42	270	270	260	260	260	260	260	260	260	260
43	260	260	260	250	250	250	250	250	250	250
44	250	250	250	250	250	240	240	240	240	240
45	240	240	240	240	240	240	240	230	230	230
46	230	230	230	230	230	230	230	230	230	220
47	220	220	220	220	220	220	220	220	220	220

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

1 minute after release of balloon; altitude of balloon, 240 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	220	220	210	210	210	210	210	210	210	210
49	210	210	210	210	210	200	200	200	200	200
50	200	200	200	200	200	200	200	200	200	200
51	190	190	190	190	190	190	190	190	190	190
52	190	190	190	190	180	180	180	180	180	180
53	180	180	180	180	180	180	180	180	180	180
54	170	170	170	170	170	170	170	170	170	170
55	170	170	170	170	170	160	160	160	160	160
56	160	160	160	160	160	160	160	160	160	160
57	160	160	150	150	150	150	150	150	150	150
58	150	150	150	150	150	150	150	150	150	140
59	140	140	140	140	140	140	140	140	140	140
60	140	140	140	140	140	140	140	130	130	130
61	130	130	130	130	130	130	130	130	130	130
62	130	130	130	130	130	120	120	120	120	120
63	120	120	120	120	120	120	120	120	120	120
64	120	120	120	120	110	110	110	110	110	110
65	110	110	110	110	110	110	110	110	110	110
66	110	110	110	110	100	100	100	100	100	100
67	100	100	100	100	100	100	100	100	100	100
68	100	100	100	100	100	90	90	90	90	90
69	90	90	90	90	90	90	90	90	90	90
70	90	90	90	90	90	80	80	80	80	80
71	80	80	80	80	80	80	80	80	80	80
72	80	80	80	80	80	80	80	70	70	70
73	70	70	70	70	70	70	70	70	70	70
74	70	70	70	70	70	70	70	70	70	60
75	60	60	60	60	60	60	60	60	60	60
76	60	60	60	60	60	60	60	60	60	60
77	60	50	50	50	50	50	50	50	50	50
78	50	50	50	50	50	50	50	50	50	50
79	50	50	50	50	40	40	40	40	40	40
80	40	40	40	40	40	40	40	40	40	40
81	40	40	40	40	40	40	40	40	30	30
82	30	30	30	30	30	30	30	30	30	30
83	30	30	30	30	30	30	30	30	30	30
84	30	20	20	20	20	20	20	20	20	20
85	20	20	20	20	20	20	20	20	20	20
86	20	20	20	20	20	10	10	10	10	10
87	10	10	10	10	10	10	10	10	10	10
88	10	10	10	10	10	10	10	10	10	10
89	0	0	0	0	0	0	0	0	0	0

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

2 minutes after release of balloon; altitude of balloon, 460 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	5, 260	5, 150	5, 060	4, 960	4, 870	4, 780	4, 690	4, 610	4, 530	4, 450
6	4, 380	4, 300	4, 230	4, 170	4, 100	4, 040	3, 980	3, 920	3, 860	3, 800
7	3, 750	3, 690	3, 640	3, 590	3, 540	3, 490	3, 450	3, 400	3, 360	3, 320
8	3, 270	3, 230	3, 190	3, 150	3, 120	3, 080	3, 040	3, 010	2, 970	2, 940
9	2, 900	2, 870	2, 840	2, 810	2, 780	2, 750	2, 720	2, 690	2, 660	2, 640
10	2, 610	2, 580	2, 560	2, 530	2, 510	2, 480	2, 460	2, 430	2, 410	2, 390
11	2, 370	2, 340	2, 320	2, 300	2, 280	2, 260	2, 240	2, 220	2, 200	2, 180
12	2, 160	2, 150	2, 130	2, 110	2, 090	2, 070	2, 060	2, 040	2, 020	2, 010
13	1, 990	1, 980	1, 960	1, 950	1, 930	1, 920	1, 900	1, 890	1, 870	1, 860
14	1, 840	1, 830	1, 820	1, 800	1, 790	1, 780	1, 770	1, 750	1, 740	1, 730
15	1, 720	1, 700	1, 690	1, 680	1, 670	1, 660	1, 650	1, 640	1, 630	1, 610
16	1, 600	1, 590	1, 580	1, 570	1, 560	1, 550	1, 540	1, 530	1, 520	1, 510
17	1, 500	1, 500	1, 490	1, 480	1, 470	1, 460	1, 450	1, 440	1, 430	1, 420
18	1, 420	1, 410	1, 400	1, 390	1, 380	1, 370	1, 370	1, 360	1, 350	1, 340
19	1, 340	1, 330	1, 320	1, 310	1, 310	1, 300	1, 290	1, 280	1, 280	1, 270
20	1, 260	1, 260	1, 250	1, 240	1, 240	1, 230	1, 220	1, 220	1, 210	1, 200
21	1, 200	1, 190	1, 190	1, 180	1, 170	1, 170	1, 160	1, 160	1, 150	1, 140
22	1, 140	1, 130	1, 130	1, 120	1, 120	1, 110	1, 110	1, 100	1, 090	1, 090
23	1, 080	1, 080	1, 070	1, 070	1, 060	1, 060	1, 050	1, 050	1, 040	1, 040
24	1, 030	1, 030	1, 020	1, 020	1, 010	1, 010	1, 000	1, 000	1, 000	990
25	990	980	980	970	970	960	960	960	950	950
26	940	940	930	930	930	920	920	910	910	910
27	900	900	900	890	890	880	880	880	870	870
28	870	860	860	850	850	850	840	840	840	830
29	830	830	820	820	820	810	810	810	800	800
30	800	790	790	790	780	780	780	770	770	770
31	770	760	760	760	750	750	750	740	740	740
32	740	730	730	730	720	720	720	720	710	710
33	710	710	700	700	700	690	690	690	690	680
34	680	680	680	670	670	670	670	660	660	660
35	660	650	650	650	650	640	640	640	640	640
36	630	630	630	630	620	620	620	620	610	610
37	610	610	610	600	600	600	600	600	590	590
38	590	590	580	580	580	580	580	570	570	570
39	570	570	560	560	560	560	560	550	550	550
40	550	550	540	540	540	540	540	530	530	530
41	530	530	530	520	520	520	520	520	510	510
42	510	510	510	510	500	500	500	500	500	500
43	490	490	490	490	490	480	480	480	480	480
44	480	470	470	470	470	470	470	460	460	460
45	460	460	460	460	450	450	450	450	450	450
46	440	440	440	440	440	440	440	430	430	430
47	430	430	430	420	420	420	420	420	420	420

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

2 minutes after release of balloon; altitude of balloon, 460 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	410	410	410	410	410	410	410	400	400	400
49	400	400	400	400	390	390	390	390	390	390
50	390	380	380	380	380	380	380	380	380	370
51	370	370	370	370	370	370	360	360	360	360
52	360	360	360	360	350	350	350	350	350	350
53	350	350	340	340	340	340	340	340	340	340
54	330	330	330	330	330	330	330	330	320	320
55	320	320	320	320	320	320	310	310	310	310
56	310	310	310	310	310	300	300	300	300	300
57	300	300	300	300	290	290	290	290	290	290
58	290	290	290	280	280	280	280	280	280	280
59	280	280	270	270	270	270	270	270	270	270
60	270	260	260	260	260	260	260	260	260	260
61	250	250	250	250	250	250	250	250	250	250
62	240	240	240	240	240	240	240	240	240	240
63	230	230	230	230	230	230	230	230	230	230
64	220	220	220	220	220	220	220	220	220	220
65	210	210	210	210	210	210	210	210	210	210
66	200	200	200	200	200	200	200	200	200	200
67	200	190	190	190	190	190	190	190	190	190
68	190	180	180	180	180	180	180	180	180	180
69	180	180	170	170	170	170	170	170	170	170
70	170	170	170	160	160	160	160	160	160	160
71	160	160	160	160	150	150	150	150	150	150
72	150	150	150	150	150	150	140	140	140	140
73	140	140	140	140	140	140	140	130	130	130
74	130	130	130	130	130	130	130	130	120	120
75	120	120	120	120	120	120	120	120	120	120
76	110	110	110	110	110	110	110	110	110	110
77	110	110	100	100	100	100	100	100	100	100
78	100	100	100	100	90	90	90	90	90	90
79	90	90	90	90	90	90	80	80	80	80
80	80	80	80	80	80	80	80	80	70	70
81	70	70	70	70	70	70	70	70	70	70
82	60	60	60	60	60	60	60	60	60	60
83	60	60	50	50	50	50	50	50	50	50
84	50	50	50	50	50	40	40	40	40	40
85	40	40	40	40	40	40	40	30	30	30
86	30	30	30	30	30	30	30	30	30	20
87	20	20	20	20	20	20	20	20	20	20
88	20	20	10	10	10	10	10	10	10	10
89	10	10	10	10	0	0	0	0	0	0

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Horizontal Component of Distance of Pilot Balloon—Continued

3 minutes after release of balloon; altitude of balloon, 680 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	7, 770	7, 620	7, 470	7, 330	7, 190	7, 070	6, 940	6, 810	6, 690	6, 580
6	6, 470	6, 360	6, 260	6, 160	6, 060	5, 970	5, 880	5, 790	5, 700	5, 620
7	5, 540	5, 460	5, 380	5, 310	5, 240	5, 170	5, 100	5, 030	4, 960	4, 900
8	4, 840	4, 780	4, 720	4, 660	4, 600	4, 550	4, 500	4, 440	4, 390	4, 340
9	4, 290	4, 250	4, 200	4, 150	4, 110	4, 060	4, 020	3, 980	3, 940	3, 900
10	3, 860	3, 820	3, 780	3, 740	3, 710	3, 670	3, 630	3, 600	3, 560	3, 530
11	3, 500	3, 470	3, 430	3, 400	3, 370	3, 340	3, 310	3, 280	3, 250	3, 230
12	3, 200	3, 170	3, 150	3, 120	3, 090	3, 070	3, 040	3, 020	2, 990	2, 970
13	2, 950	2, 920	2, 900	2, 880	2, 850	2, 830	2, 810	2, 790	2, 770	2, 750
14	2, 730	2, 710	2, 690	2, 670	2, 650	2, 630	2, 610	2, 590	2, 570	2, 560
15	2, 540	2, 520	2, 500	2, 490	2, 470	2, 450	2, 440	2, 420	2, 400	2, 390
16	2, 370	2, 360	2, 340	2, 330	2, 310	2, 300	2, 280	2, 270	2, 250	2, 240
17	2, 220	2, 210	2, 200	2, 180	2, 170	2, 160	2, 140	2, 130	2, 120	2, 110
18	2, 090	2, 080	2, 070	2, 060	2, 040	2, 030	2, 020	2, 010	2, 000	1, 990
19	1, 970	1, 960	1, 950	1, 940	1, 930	1, 920	1, 910	1, 900	1, 890	1, 880
20	1, 870	1, 860	1, 850	1, 840	1, 830	1, 820	1, 810	1, 800	1, 790	1, 780
21	1, 770	1, 760	1, 750	1, 740	1, 740	1, 730	1, 720	1, 710	1, 700	1, 690
22	1, 680	1, 670	1, 670	1, 660	1, 650	1, 640	1, 630	1, 630	1, 620	1, 610
23	1, 600	1, 590	1, 590	1, 580	1, 570	1, 560	1, 560	1, 550	1, 540	1, 530
24	1, 530	1, 520	1, 510	1, 510	1, 500	1, 490	1, 490	1, 480	1, 470	1, 460
25	1, 460	1, 450	1, 450	1, 440	1, 430	1, 430	1, 420	1, 410	1, 410	1, 400
26	1, 390	1, 390	1, 380	1, 380	1, 370	1, 360	1, 360	1, 350	1, 350	1, 340
27	1, 330	1, 330	1, 320	1, 320	1, 310	1, 310	1, 300	1, 300	1, 290	1, 280
28	1, 280	1, 270	1, 270	1, 260	1, 260	1, 250	1, 250	1, 240	1, 240	1, 230
29	1, 230	1, 220	1, 220	1, 210	1, 210	1, 200	1, 200	1, 190	1, 190	1, 180
30	1, 180	1, 170	1, 170	1, 160	1, 160	1, 150	1, 150	1, 150	1, 140	1, 140
31	1, 130	1, 130	1, 120	1, 120	1, 110	1, 110	1, 110	1, 100	1, 100	1, 090
32	1, 090	1, 080	1, 080	1, 080	1, 070	1, 070	1, 060	1, 060	1, 060	1, 050
33	1, 050	1, 040	1, 040	1. 040	1, 030	1, 030	1, 020	1, 020	1, 020	1, 010
34	1, 010	1, 000	1, 000	1, 000	990	990	990	980	980	970
35	970	970	960	960	960	950	950	950	940	940
36	940	930	930	930	920	920	920	910	910	910
37	900	900	900	890	890	890	880	880	880	870
38	870	870	860	860	860	850	850	850	850	840
39	840	840	830	830	830	820	820	820	820	810
40	810	810	800	800	800	800	790	790	790	780
41	780	780	780	770	770	770	770	760	760	760
42	760	750	750	750	740	740	740	740	730	730
43	730	730	720	720	720	720	710	710	710	710
44	700	700	700	700	690	690	690	690	680	680
45	680	680	680	670	670	670	670	660	660	660
46	660	650	650	650	650	650	640	640	640	640
47	630	630	630	630	630	620	620	620	620	610

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

3 minutes after release of balloon; altitude of balloon, 680 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	610	610	610	610	600	600	600	600	600	590
49	590	590	590	580	580	580	580	580	570	570
50	570	570	570	560	560	560	560	560	550	550
51	550	550	550	540	540	540	540	540	540	530
52	530	530	530	530	520	520	520	520	520	510
53	510	510	510	510	510	500	500	500	500	500
54	490	490	490	490	490	490	480	480	480	480
55	480	470	470	470	470	470	470	460	460	460
56	460	460	460	450	450	450	450	450	440	440
57	440	440	440	440	430	430	430	430	430	430
58	420	420	420	420	420	420	420	410	410	410
59	410	410	410	400	400	400	400	400	400	390
60	390	390	390	390	390	380	380	380	380	380
61	380	380	370	370	370	370	370	370	360	360
62	360	360	360	360	360	350	350	350	350	350
63	350	340	340	340	340	340	340	340	330	330
64	330	330	330	330	330	320	320	320	320	320
65	320	320	310	310	310	310	310	310	310	300
66	300	300	300	300	300	300	290	290	290	290
67	290	290	290	280	280	280	280	280	280	280
68	270	270	270	270	270	270	270	270	260	260
69	260	260	260	260	260	250	250	250	250	250
70	250	250	240	240	240	240	240	240	240	240
71	230	230	230	230	230	230	230	220	220	220
72	220	220	220	220	220	210	210	210	210	210
73	210	210	210	200	200	200	200	200	200	200
74	190	190	190	190	190	190	190	190	180	180
75	180	180	180	180	180	180	170	170	170	170
76	170	170	170	170	160	160	160	160	160	160
77	160	160	150	150	150	150	150	150	150	150
78	140	140	140	140	140	140	140	140	130	130
79	130	130	130	130	130	130	120	120	120	120
80	120	120	120	120	110	110	110	110	110	110
81	110	110	100	100	100	100	100	100	100	100
82	100	90	90	90	90	90	90	90	90	80
83	80	80	80	80	80	80	80	80	70	70
84	70	70	70	70	70	70	60	60	60	60
85	60	60	60	60	50	50	50	50	50	50
86	50	50	50	40	40	40	40	40	40	40
87	40	30	30	30	30	30	30	30	30	20
88	20	20	20	20	20	20	20	20	10	10
89	10	10	10	10	10	10	0	0	0	0

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

4 minutes after release of balloon; altitude of balloon, 890 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	10, 170	9, 970	9, 780	9, 590	9, 420	9, 250	9, 080	8, 920	8, 760	8, 610
6	8, 470	8, 330	8, 190	8, 060	7, 930	7, 810	7, 690	7, 580	7, 460	7, 350
7	7, 250	7, 150	7, 050	6, 950	6, 850	6, 760	6, 670	6, 580	6, 500	6, 410
8	6, 330	6, 250	6, 180	6, 100	6, 030	5, 960	5, 880	5, 820	5, 750	5, 680
9	5, 620	5, 560	5, 500	5, 430	5, 380	5, 320	5, 260	5, 210	5, 150	5, 100
10	5, 050	5, 000	4, 950	4, 900	4, 850	4, 800	4, 760	4, 710	4, 670	4, 620
11	4, 580	4, 540	4, 490	4, 450	4, 410	4, 370	4, 340	4, 300	4, 260	4, 220
12	4, 190	4, 150	4, 120	4, 080	4, 050	4, 010	3, 980	3, 950	3, 920	3, 890
13	3, 860	3, 820	3, 790	3, 760	3, 740	3, 710	3, 680	3, 650	3, 620	3, 600
14	3, 570	3, 540	3, 520	3, 490	3, 470	3, 440	3, 420	3, 390	3, 370	3, 340
15	3, 320	3, 300	3, 280	3, 250	3, 230	3, 210	3, 190	3, 170	3, 150	3, 120
16	3, 100	3, 080	3, 060	3, 040	3, 020	3, 000	2, 990	2, 970	2, 950	2, 930
17	2, 910	2, 890	2, 880	2, 860	2, 840	2, 820	2, 810	2, 790	2, 770	2, 760
18	2, 740	2, 720	2, 710	2, 690	2, 680	2, 660	2, 640	2, 630	2, 610	2, 600
19	2, 580	2, 570	2, 560	2, 540	2, 530	2, 510	2, 500	2, 490	2, 470	2, 460
20	2, 450	2, 430	2, 420	2, 410	2, 390	2, 380	2, 370	2, 360	2, 340	2, 330
21	2, 320	2, 310	2, 290	2, 280	2, 270	2, 260	2, 250	2, 240	2, 230	2, 210
22	2, 200	2, 190	2, 180	2, 170	2, 160	2, 150	2, 140	2, 130	2, 120	2, 110
23	2, 100	2, 090	2, 080	2, 070	2, 060	2, 050	2, 040	2, 030	2, 020	2, 010
24	2, 000	1, 990	1, 980	1, 970	1, 960	1, 950	1, 940	1, 940	1, 930	1, 920
25	1, 910	1, 900	1, 890	1, 880	1, 870	1, 870	1, 860	1, 850	1, 840	1, 830
26	1, 820	1, 820	1, 810	1, 800	1, 790	1, 790	1, 780	1, 770	1, 760	1, 750
27	1, 750	1, 740	1, 730	1, 720	1, 720	1, 710	1, 700	1, 700	1, 690	1, 680
28	1, 670	1, 670	1, 660	1, 650	1, 650	1, 640	1, 630	1, 630	1, 620	1, 610
29	1, 610	1, 600	1, 590	1, 590	1, 580	1, 570	1, 570	1, 560	1, 550	1, 550
30	1, 540	1, 540	1, 530	1, 520	1, 520	1, 510	1, 500	1, 500	1, 490	1, 490
31	1, 480	1, 480	1, 470	1, 460	1, 460	1, 450	1, 450	1, 440	1, 440	1, 430
32	1, 420	1, 420	1, 410	1, 410	1, 400	1, 400	1, 390	1, 390	1, 380	1, 380
33	1, 370	1, 370	1, 360	1, 350	1, 350	1, 340	1, 340	1, 330	1, 330	1, 320
34	1, 320	1, 310	1, 310	1, 300	1, 300	1, 290	1, 290	1, 290	1, 280	1, 280
35	1, 270	1, 270	1, 260	1, 260	1, 250	1, 250	1, 240	1, 240	1, 230	1, 230
36	1, 220	1, 220	1, 220	1, 210	1, 210	1, 200	1, 200	1, 190	1, 190	1, 190
37	1, 180	1, 180	1, 170	1, 170	1, 160	1, 160	1, 160	1, 150	1, 150	1, 140
38	1, 140	1, 140	1, 130	1, 130	1, 120	1, 120	1, 110	1, 110	1, 110	1, 100
39	1, 100	1, 100	1, 090	1, 090	1, 080	1, 080	1, 080	1, 070	1, 070	1, 060
40	1, 060	1, 060	1, 050	1, 050	1, 050	1, 040	1, 040	1, 030	1, 030	1, 030
41	1, 020	1, 020	1, 020	1, 010	1, 010	1, 010	1, 000	1, 000	1, 000	990
42	990	980	980	980	970	970	970	960	960	960
43	950	950	950	940	940	940	930	930	930	920
44	920	920	920	910	910	910	900	900	900	890
45	890	890	880	880	880	870	870	870	870	860
46	860	860	850	850	850	840	840	840	840	830
47	830	830	820	820	820	820	810	810	810	800

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

4 minutes after release of balloon; altitude of balloon, 890 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	800	800	800	790	790	790	780	780	780	780
49	770	770	770	770	760	760	760	750	750	750
50	750	740	740	740	740	730	730	730	730	720
51	720	720	720	710	710	710	710	700	700	700
52	700	690	690	690	690	680	680	680	680	670
53	670	670	670	660	660	660	660	650	650	650
54	650	640	640	640	640	630	630	630	630	630
55	620	620	620	620	610	610	610	610	600	600
56	600	600	600	590	590	590	590	580	580	580
57	580	580	570	570	570	570	560	560	560	560
58	560	550	550	550	550	550	540	540	540	540
59	530	530	530	530	530	520	520	520	520	520
60	510	510	510	510	510	500	500	500	500	500
61	490	490	490	490	490	480	480	480	480	480
62	470	470	470	470	470	460	460	460	460	460
63	450	450	450	450	450	440	440	440	440	440
64	430	430	430	430	430	420	420	420	420	420
65	420	410	410	410	410	410	400	400	400	400
66	400	390	390	390	390	390	390	380	380	380
67	380	380	370	370	370	370	370	360	360	360
68	360	360	360	350	350	350	350	350	350	340
69	340	340	340	340	330	330	330	330	330	330
70	320	320	320	320	320	320	310	310	310	310
71	310	300	300	300	300	300	300	290	290	290
72	290	290	290	280	280	280	280	280	280	270
73	270	270	270	270	270	260	260	260	260	260
74	260	250	250	250	250	250	250	240	240	240
75	240	240	240	230	230	230	230	230	230	220
76	220	220	220	220	220	210	210	210	210	210
77	210	200	200	200	200	200	200	190	190	190
78	190	190	190	180	180	180	180	180	180	170
79	170	170	170	170	170	160	160	160	160	160
80	160	160	150	150	150	150	150	150	140	140
81	140	140	140	140	130	130	130	130	130	130
82	130	120	120	120	120	120	120	110	110	110
83	110	110	110	100	100	100	100	100	100	100
84	90	90	90	90	90	90	80	80	80	80
85	80	80	70	70	70	70	70	70	70	60
86	60	60	60	60	60	50	50	50	50	50
87	50	50	40	40	40	40	40	40	30	30
88	30	30	30	30	20	20	20	20	20	20
89	20	10	10	10	10	10	10	0	0	0

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

5 minutes after release of balloon; altitude of balloon, 1,100 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	12, 570	12, 320	12, 090	11, 860	11, 640	11, 430	11, 220	11, 020	10, 830	10, 640
6	10, 470	10, 290	10, 130	9, 960	9, 810	9, 650	9, 510	9, 360	9, 220	9, 090
7	8, 960	8, 830	8, 710	8, 590	8, 470	8, 360	8, 240	8, 140	8, 030	7, 930
8	7, 830	7, 730	7, 630	7, 540	7, 450	7, 360	7, 270	7, 190	7, 110	7, 020
9	6, 950	6, 870	6, 790	6, 720	6, 640	6, 570	6, 500	6, 440	6, 370	6, 300
10	6, 240	6, 180	6, 110	6, 050	5, 990	5, 940	5, 880	5, 820	5, 770	5, 710
11	5, 660	5, 610	5, 560	5, 500	5, 460	5, 410	5, 360	5, 310	5, 270	5, 220
12	5, 180	5, 130	5, 090	5, 050	5, 000	4, 960	4, 920	4, 880	4, 840	4, 800
13	4, 760	4, 730	4, 690	4, 650	4, 620	4, 580	4, 550	4, 510	4, 480	4, 440
14	4, 410	4, 380	4, 350	4, 320	4, 280	4, 250	4, 220	4, 190	4, 160	4, 130
15	4, 110	4, 080	4, 050	4, 020	3, 990	3, 970	3, 940	3, 910	3, 890	3, 860
16	3, 840	3, 810	3, 790	3, 760	3, 740	3, 710	3, 690	3, 670	3, 640	3, 620
17	3, 600	3, 580	3, 550	3, 530	3, 510	3, 490	3, 470	3, 450	3, 430	3, 410
18	3, 390	3, 370	3, 350	3, 330	3, 310	3, 290	3, 270	3, 250	3, 230	3, 210
19	3, 190	3, 180	3, 160	3, 140	3, 120	3, 110	3, 090	3, 070	3, 060	3, 040
20	3, 020	3, 010	2, 990	2, 970	2, 960	2, 940	2, 930	2, 910	2, 900	2, 880
21	2, 870	2, 850	2, 840	2, 820	2, 810	2, 790	2, 780	2, 760	2, 750	2, 740
22	2, 720	2, 710	2, 700	2, 680	2, 670	2, 660	2, 640	2, 630	2, 620	2, 600
23	2, 590	2, 580	2, 570	2, 550	2, 540	2, 530	2, 520	2, 510	2, 490	2, 480
24	2, 470	2, 460	2, 450	2, 440	2, 420	2, 410	2, 400	2, 390	2, 380	2, 370
25	2, 360	2, 350	2, 340	2, 330	2, 320	2, 310	2, 300	2, 290	2, 280	2, 270
26	2, 260	2, 250	2, 240	2, 230	2, 220	2, 210	2, 200	2, 190	2, 180	2, 170
27	2, 160	2, 150	2, 140	2, 130	2, 120	2, 110	2, 100	2, 100	2, 090	2, 080
28	2, 070	2, 060	2, 050	2, 040	2, 030	2, 030	2, 020	2, 010	2, 000	1, 990
29	1, 980	1, 980	1, 970	1, 960	1, 950	1, 940	1, 940	1, 930	1, 920	1, 910
30	1, 910	1, 900	1, 890	1, 880	1, 870	1, 870	1, 860	1, 850	1, 850	1, 840
31	1, 830	1, 820	1, 820	1, 810	1, 800	1, 800	1, 790	1, 780	1, 770	1, 770
32	1, 760	1, 750	1, 750	1, 740	1, 730	1, 730	1, 720	1, 710	1, 710	1, 700
33	1, 690	1, 690	1, 680	1, 670	1, 670	1, 660	1, 660	1, 650	1, 640	1, 640
34	1, 630	1, 620	1, 620	1, 610	1, 610	1, 600	1, 590	1, 590	1, 580	1, 580
35	1, 570	1, 570	1, 560	1, 550	1, 550	1, 540	1, 540	1, 530	1, 530	1, 520
36	1, 510	1, 510	1, 500	1, 500	1, 490	1, 490	1, 480	1, 480	1, 470	1, 470
37	1, 460	1, 450	1, 450	1, 440	1, 440	1, 430	1, 430	1, 420	1, 420	1, 410
38	1, 410	1, 400	1, 400	1, 390	1, 390	1, 380	1, 380	1, 370	1, 370	1, 360
39	1, 360	1, 350	1, 350	1, 340	1, 340	1, 330	1, 330	1, 320	1, 320	1, 320
40	1, 310	1, 310	1, 300	1, 300	1, 290	1, 290	1, 280	1, 280	1, 270	1, 270
41	1, 270	1, 260	1, 260	1, 250	1, 250	1, 240	1, 240	1, 230	1, 230	1, 230
42	1, 220	1, 220	1, 210	1, 210	1, 200	1, 200	1, 200	1, 190	1, 190	1, 180
43	1, 180	1, 180	1, 170	1, 170	1, 160	1, 160	1, 160	1, 150	1, 150	1, 140
44	1, 140	1, 140	1, 130	1, 130	1, 120	1, 120	1, 120	1, 110	1, 110	1, 100
45	1, 100	1, 100	1, 090	1, 090	1, 080	1, 080	1, 080	1, 070	1, 070	1, 070
46	1, 060	1, 060	1, 050	1, 050	1, 050	1, 040	1, 040	1, 040	1, 030	1, 030
47	1, 030	1, 020	1, 020	1, 020	1, 010	1, 010	1, 000	1, 000	1, 000	990

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

5 minutes after release of balloon; altitude of balloon, 1,100 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	990	990	980	980	980	970	970	970	960	960
49	960	950	950	950	940	940	940	930	930	930
50	920	920	920	910	910	910	900	900	900	890
51	890	890	880	880	880	870	870	870	870	860
52	860	860	850	850	850	840	840	840	830	830
53	830	830	820	820	820	810	810	810	810	800
54	800	800	790	790	790	780	780	780	780	770
55	770	770	760	760	760	760	750	750	750	740
56	740	740	740	730	730	730	730	720	720	720
57	710	710	710	710	700	700	700	700	690	690
58	690	680	680	680	680	670	670	670	670	660
59	660	660	660	650	650	650	650	640	640	640
60	640	630	630	630	620	620	620	620	610	610
61	610	610	600	600	600	600	590	590	590	590
62	580	580	580	580	580	570	570	570	570	560
63	560	560	560	550	550	550	550	540	540	540
64	540	530	530	530	530	520	520	520	520	520
65	510	510	510	510	500	500	500	500	490	490
66	490	490	490	480	480	480	480	470	470	470
67	470	460	460	460	460	460	450	450	450	450
68	440	440	440	440	440	430	430	430	430	420
69	420	420	420	420	410	410	410	410	400	400
70	400	400	400	390	390	390	390	390	380	380
71	380	380	370	370	370	370	370	360	360	360
72	360	360	350	350	350	350	340	340	340	340
73	340	330	330	330	330	330	320	320	320	320
74	320	310	310	310	310	310	300	300	300	300
75	290	290	290	290	290	280	280	280	280	280
76	270	270	270	270	270	260	260	260	260	260
77	250	250	250	250	250	240	240	240	240	240
78	230	230	230	230	230	220	220	220	220	220
79	210	210	210	210	210	200	200	200	200	200
80	190	190	190	190	190	180	180	180	180	180
81	170	170	170	170	170	160	160	160	160	160
82	150	150	150	150	150	140	140	140	140	140
83	140	130	130	130	130	130	120	120	120	120
84	120	110	110	110	110	110	100	100	100	100
85	100	90	90	90	90	90	80	80	80	80
86	80	80	70	70	70	70	70	60	60	60
87	60	60	50	50	50	50	50	40	40	40
88	40	40	30	30	30	30	30	20	20	20
89	20	20	20	10	10	10	10	10	0	0

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

6 minutes after release of balloon; altitude of balloon, 1,300 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	14, 860	14, 560	14, 290	14, 010	13, 750	13, 510	13, 260	13, 030	12, 800	12, 580
6	12, 370	12, 160	11, 970	11, 780	11, 590	11, 410	11, 240	11, 070	10, 900	10, 740
7	10, 590	10, 440	10, 290	10, 150	10, 010	9, 870	9, 740	9, 620	9, 490	9, 370
8	9, 250	9, 130	9, 020	8, 910	8, 800	8, 700	8, 600	8, 500	8, 400	8, 300
9	8, 210	8, 120	8, 030	7, 940	7, 850	7, 770	7, 690	7, 610	7, 530	7, 450
10	7, 370	7, 300	7, 230	7, 150	7, 080	7, 010	6, 950	6, 880	6, 810	6, 750
11	6, 690	6, 630	6, 570	6, 510	6, 450	6, 390	6, 330	6, 280	6, 220	6, 170
12	6, 120	6, 060	6, 010	5, 960	5, 910	5, 860	5, 820	5, 770	5, 720	5, 680
13	5, 630	5, 590	5, 540	5, 500	5, 460	5, 410	5, 370	5, 330	5, 290	5, 250
14	5, 210	5, 180	5, 140	5, 100	5, 060	5, 030	4, 990	4, 960	4, 920	4, 890
15	4, 850	4, 820	4, 780	4, 750	4, 720	4, 690	4, 660	4, 620	4, 590	4, 560
16	4, 530	4, 500	4, 470	4, 450	4, 420	4, 390	4, 360	4, 330	4, 310	4, 280
17	4, 250	4, 230	4, 200	4, 170	4, 150	4, 120	4, 100	4, 070	4, 050	4, 020
18	4, 000	3, 980	3, 950	3, 930	3, 910	3, 890	3, 860	3, 840	3, 820	3, 800
19	3, 780	3, 750	3, 730	3, 710	3, 690	3, 670	3, 650	3, 630	3, 610	3, 590
20	3, 570	3, 550	3, 530	3, 510	3, 500	3, 480	3, 460	3, 440	3, 420	3, 400
21	3, 390	3, 370	3, 350	3, 330	3, 320	3, 300	3, 280	3, 270	3, 250	3, 230
22	3, 220	3, 200	3, 190	3, 170	3, 150	3, 140	3, 120	3, 110	3, 090	3, 080
23	3, 060	3, 050	3, 030	3, 020	3, 000	2, 990	2, 980	2, 960	2, 950	2, 930
24	2, 920	2, 910	2, 890	2, 880	2, 870	2, 850	2, 840	2, 830	2, 810	2, 800
25	2, 790	2, 780	2, 760	2, 750	2, 740	2, 730	2, 710	2, 700	2, 690	2, 680
26	2, 670	2, 650	2, 640	2, 630	2, 620	2, 610	2, 600	2, 580	2, 570	2, 560
27	2, 550	2, 540	2, 530	2, 520	2, 510	2, 500	2, 490	2, 480	2, 470	2, 460
28	2, 440	2, 430	2, 420	2, 410	2, 400	2, 390	2, 380	2, 370	2, 360	2, 350
29	2, 350	2, 340	2, 330	2, 320	2, 310	2, 300	2, 290	2, 280	2, 270	2, 260
30	2, 250	2, 240	2, 230	2, 220	2, 220	2, 210	2, 200	2, 190	2, 180	2, 170
31	2, 160	2, 160	2, 150	2, 140	2, 130	2, 120	2, 110	2, 100	2, 100	2, 090
32	2, 080	2, 070	2, 060	2, 060	2, 050	2, 040	2, 030	2, 030	2, 020	2, 010
33	2, 000	1, 990	1, 990	1, 980	1, 970	1, 960	1, 960	1, 950	1, 940	1, 930
34	1, 930	1, 920	1, 910	1, 910	1, 900	1, 890	1, 880	1, 880	1, 870	1, 860
35	1, 860	1, 850	1, 840	1, 840	1, 830	1, 820	1, 820	1, 810	1, 800	1, 800
36	1, 790	1, 780	1, 780	1, 770	1, 760	1, 760	1, 750	1, 740	1, 740	1, 730
37	1, 730	1, 720	1, 710	1, 710	1, 700	1, 690	1, 690	1, 680	1, 680	1, 670
38	1, 660	1, 660	1, 650	1, 650	1, 640	1, 630	1, 630	1, 620	1, 620	1, 610
39	1, 610	1, 600	1, 590	1, 590	1, 580	1, 580	1, 570	1, 570	1, 560	1, 550
40	1, 550	1, 540	1, 540	1, 530	1, 530	1, 520	1, 520	1, 510	1, 510	1, 500
41	1, 500	1, 490	1, 480	1, 480	1, 470	1, 470	1, 460	1, 460	1, 450	1, 450
42	1, 440	1, 440	1, 430	1, 430	1, 420	1, 420	1, 410	1, 410	1, 400	1, 400
43	1, 390	1, 390	1, 380	1, 380	1, 370	1, 370	1, 370	1, 360	1, 360	1, 350
44	1, 350	1, 340	1, 340	1, 330	1, 330	1, 320	1, 320	1, 310	1, 310	1, 300
45	1, 300	1, 300	1, 290	1, 290	1, 280	1, 280	1, 270	1, 270	1, 260	1, 260
46	1, 260	1, 250	1, 250	1, 240	1, 240	1, 230	1, 230	1, 230	1, 220	1, 220
47	1, 210	1, 210	1, 200	1, 200	1, 200	1, 190	1, 190	1, 180	1, 180	1, 170

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

6 minutes after release of balloon; altitude of balloon, 1,300 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	1, 170	1, 170	1, 160	1, 160	1, 150	1, 150	1, 150	1, 140	1, 140	1, 130
49	1, 130	1, 130	1, 120	1, 120	1, 110	1, 110	1, 110	1, 100	1, 100	1, 090
50	1, 090	1, 090	1, 080	1, 080	1, 080	1, 070	1, 070	1, 060	1, 060	1, 060
51	1, 050	1, 050	1, 050	1, 040	1, 040	1, 030	1, 030	1, 030	1, 020	1, 020
52	1, 020	1, 010	1, 010	1, 000	1, 000	1, 000	990	990	990	980
53	980	980	970	970	970	960	960	950	950	950
54	940	940	940	930	930	930	920	920	920	910
55	910	910	900	900	900	890	890	890	880	880
56	880	870	870	870	860	860	860	850	850	850
57	840	840	840	830	830	830	820	820	820	820
58	810	810	810	800	800	800	790	790	790	780
59	780	780	770	770	770	770	760	760	760	750
60	750	750	740	740	740	740	730	730	730	720
61	720	720	710	710	710	710	700	700	700	690
62	690	690	690	680	680	680	670	670	670	670
63	660	660	660	650	650	650	650	640	640	640
64	630	630	630	630	620	620	620	610	610	610
65	610	600	600	600	600	590	590	590	580	580
66	580	580	570	570	570	570	560	560	560	550
67	550	550	550	540	540	540	540	530	530	530
68	530	520	520	520	510	510	510	510	500	500
69	500	500	490	490	490	490	480	480	480	480
70	470	470	470	470	460	460	460	460	450	450
71	450	450	440	440	440	430	430	430	430	420
72	420	420	420	410	410	410	410	400	400	400
73	400	390	390	390	390	390	380	380	380	380
74	370	370	370	370	360	360	360	360	350	350
75	350	350	340	340	340	340	330	330	330	330
76	320	320	320	320	310	310	310	310	300	300
77	300	300	300	290	290	290	290	280	280	280
78	280	270	270	270	270	260	260	260	260	260
79	250	250	250	250	240	240	240	240	230	230
80	230	230	220	220	220	220	220	210	210	210
81	210	200	200	200	200	190	190	190	190	180
82	180	180	180	180	170	170	170	170	160	160
83	160	160	150	150	150	150	150	140	140	140
84	140	130	130	130	130	130	120	120	120	120
85	110	110	110	110	100	100	100	100	100	90
86	90	90	90	80	80	80	80	80	70	70
87	70	70	60	60	60	60	50	50	50	50
88	50	40	40	40	40	30	30	30	30	20
89	20	20	20	20	10	10	10	10	0	0

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

7 minutes after release of balloon; altitude of balloon, 1,500 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	17, 140	16, 800	16, 480	16, 170	15, 870	15, 580	15, 300	15, 030	14, 770	14, 520
6	14, 270	14, 040	13, 810	13, 590	13, 370	13, 170	12, 960	12, 770	12, 580	12, 400
7	12, 220	12, 040	11, 870	11, 710	11, 550	11, 390	11, 240	11, 090	10, 950	10, 810
8	10, 670	10, 540	10, 410	10, 280	10, 160	10, 040	9, 920	9, 800	9, 690	9, 580
9	9, 470	9, 360	9, 260	9, 160	9, 060	8, 960	8, 870	8, 780	8, 680	8, 590
10	8, 510	8, 420	8, 340	8, 250	8, 170	8, 090	8, 020	7, 940	7, 860	7, 790
11	7, 720	7, 650	7, 580	7, 510	7, 440	7, 370	7, 310	7, 240	7, 180	7, 120
12	7, 070	7, 000	6, 940	6, 880	6, 820	6, 770	6, 710	6, 660	6, 600	6, 550
13	6, 500	6, 450	6, 400	6, 350	6, 300	6, 250	6, 200	6, 150	6, 110	6, 060
14	6, 020	5, 970	5, 930	5, 880	5, 840	5, 800	5, 760	5, 720	5, 680	5, 640
15	5, 600	5, 560	5, 520	5, 480	5, 450	5, 410	5, 370	5, 340	5, 300	5, 270
16	5, 230	5, 200	5, 160	5, 130	5, 100	5, 060	5, 030	5, 000	4, 970	4, 940
17	4, 910	4, 880	4, 850	4, 820	4, 790	4, 760	4, 730	4, 700	4, 670	4, 640
18	4, 620	4, 590	4, 560	4, 540	4, 510	4, 480	4, 460	4, 430	4, 410	4, 380
19	4, 360	4, 330	4, 310	4, 280	4, 260	4, 240	4, 210	4, 190	4, 170	4, 140
20	4, 120	4, 100	4, 080	4, 060	4, 030	4, 010	3, 990	3, 970	3, 950	3, 930
21	3, 910	3, 890	3, 870	3, 850	3, 830	3, 810	3, 790	3, 770	3, 750	3, 730
22	3, 710	3, 690	3, 680	3, 660	3, 640	3, 620	3, 600	3, 590	3, 570	3, 550
23	3, 530	3, 520	3, 500	3, 480	3, 470	3, 450	3, 430	3, 420	3, 400	3, 380
24	3, 370	3, 350	3, 340	3, 320	3, 310	3, 290	3, 280	3, 260	3, 250	3, 230
25	3, 220	3, 200	3, 190	3, 170	3, 160	3, 140	3, 130	3, 120	3, 100	3, 090
26	3, 080	3, 060	3, 050	3, 030	3, 020	3, 010	3, 000	2, 980	2, 970	2, 960
27	2, 940	2, 930	2, 920	2, 910	2, 890	2, 880	2, 870	2, 860	2, 850	2, 830
28	2, 820	2, 810	2, 800	2, 790	2, 770	2, 760	2, 750	2, 740	2, 730	2, 720
29	2, 710	2, 690	2, 680	2, 670	2, 660	2, 650	2, 640	2, 630	2, 620	2, 610
30	2, 600	2, 590	2, 580	2, 570	2, 560	2, 550	2, 540	2, 530	2, 520	2, 510
31	2, 500	2, 490	2, 480	2, 470	2, 460	2, 450	2, 440	2, 430	2, 420	2, 410
32	2, 400	2, 390	2, 380	2, 370	2, 360	2, 350	2, 350	2, 340	2, 330	2, 320
33	2, 310	2, 300	2, 290	2, 280	2, 270	2, 270	2, 260	2, 250	2, 240	2, 230
34	2, 220	2, 220	2, 210	2, 200	2, 190	2, 180	2, 170	2, 170	2, 160	2, 150
35	2, 140	2, 130	2, 130	2, 120	2, 110	2, 100	2, 100	2, 090	2, 080	2, 070
36	2, 060	2, 060	2, 050	2, 040	2, 030	2, 030	2, 020	2, 010	2, 010	2, 000
37	1, 990	1, 980	1, 980	1, 970	1, 960	1, 950	1, 950	1, 940	1, 930	1, 930
38	1, 920	1, 910	1, 910	1, 900	1, 890	1, 890	1, 880	1, 870	1, 870	1, 860
39	1, 850	1, 850	1, 840	1, 830	1, 830	1, 820	1, 810	1, 810	1, 800	1, 790
40	1, 790	1, 780	1, 770	1, 770	1, 760	1, 760	1, 750	1, 740	1, 740	1, 730
41	1, 730	1, 720	1, 710	1, 710	1, 700	1, 700	1, 690	1, 680	1, 680	1, 670
42	1, 670	1, 660	1, 650	1, 650	1, 640	1, 640	1, 630	1, 630	1, 620	1, 610
43	1, 610	1, 600	1, 600	1, 590	1, 590	1, 580	1, 580	1, 570	1, 560	1, 560
44	1, 550	1, 550	1, 540	1, 540	1, 530	1, 530	1, 520	1, 520	1, 510	1, 510
45	1, 500	1, 490	1, 490	1, 480	1, 480	1, 470	1, 470	1, 460	1, 460	1, 450
46	1, 450	1, 440	1, 440	1, 430	1, 430	1, 420	1, 420	1, 410	1, 410	1, 400
47	1, 400	1, 390	1, 390	1, 380	1, 380	1, 370	1, 370	1, 360	1, 360	1, 360

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

7 minutes after release of balloon; altitude of balloon, 1,500 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	1, 350	1, 350	1, 340	1, 340	1, 330	1, 330	1, 320	1, 320	1, 310	1, 310
49	1, 300	1, 300	1, 290	1, 290	1, 290	1, 280	1, 280	1, 270	1, 270	1, 260
50	1, 260	1, 250	1, 250	1, 250	1, 240	1, 240	1, 230	1, 230	1, 220	1, 220
51	1, 210	1, 210	1, 210	1, 200	1, 200	1, 190	1, 190	1, 180	1, 180	1, 180
52	1, 170	1, 170	1, 160	1, 160	1, 160	1, 150	1, 150	1, 140	1, 140	1, 130
53	1, 130	1, 130	1, 120	1, 120	1, 110	1, 110	1, 110	1, 100	1, 100	1, 090
54	1, 090	1, 090	1, 080	1, 080	1, 070	1, 070	1, 070	1, 060	1, 060	1, 050
55	1, 050	1, 050	1, 040	1, 040	1, 030	1, 030	1, 030	1, 020	1, 020	1, 020
56	1, 010	1, 010	1, 000	1, 000	1, 000	990	990	990	980	980
57	970	970	970	960	960	960	950	950	940	940
58	940	930	930	930	920	920	920	910	910	900
59	900	900	890	890	890	880	880	880	870	870
60	870	860	860	860	850	850	850	840	840	830
61	830	830	820	820	820	810	810	810	800	800
62	800	790	790	790	780	780	780	770	770	770
63	760	760	760	750	750	750	740	740	740	730
64	730	730	730	720	720	720	710	710	710	700
65	700	700	690	690	690	680	680	680	670	670
66	670	660	660	660	660	650	650	650	640	640
67	640	630	630	630	620	620	620	620	610	610
68	610	600	600	600	590	590	590	580	580	580
69	580	570	570	570	560	560	560	550	550	550
70	550	540	540	540	530	530	530	530	520	520
71	520	510	510	510	500	500	500	500	490	490
72	490	480	480	480	480	470	470	470	460	460
73	460	460	450	450	450	440	440	440	440	430
74	430	430	420	420	420	420	410	410	410	400
75	400	400	400	390	390	390	390	380	380	380
76	370	370	370	370	360	360	360	350	350	350
77	350	340	340	340	340	330	330	330	320	320
78	320	320	310	310	310	310	300	300	300	290
79	290	290	290	280	280	280	280	270	270	270
80	260	260	260	260	250	250	250	250	240	240
81	240	230	230	230	230	220	220	220	220	210
82	210	210	210	200	200	200	190	190	190	190
83	180	180	180	180	170	170	170	170	160	160
84	160	150	150	150	150	140	140	140	140	130
85	130	130	130	120	120	120	120	110	110	110
86	100	100	100	100	90	90	90	90	80	80
87	80	80	70	70	70	70	60	60	60	60
88	50	50	50	40	40	40	40	30	30	30
89	30	20	20	20	20	10	10	10	10	0

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

8 minutes after release of balloon; altitude of balloon, 1,700 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	19, 430	19, 040	18, 680	18, 330	17, 990	17, 660	17, 340	17, 030	16, 740	16, 450
6	16, 170	15, 910	15, 650	15, 400	15, 160	14, 920	14, 690	14, 470	14, 260	14, 050
7	13, 850	13, 650	13, 460	13, 270	13, 090	12, 910	12, 740	12, 570	12, 410	12, 250
8	12, 100	11, 940	11, 800	11, 650	11, 510	11, 380	11, 240	11, 110	10, 980	10, 860
9	10, 730	10, 610	10, 500	10, 380	10, 270	10, 160	10, 050	9, 950	9, 840	9, 740
10	9, 640	9, 540	9, 450	9, 350	9, 260	9, 170	9, 080	9, 000	8, 910	8, 830
11	8, 750	8, 660	8, 590	8, 510	8, 430	8, 360	8, 280	8, 210	8, 140	8, 070
12	8, 000	7, 930	7, 860	7, 800	7, 730	7, 670	7, 610	7, 540	7, 480	7, 420
13	7, 360	7, 310	7, 250	7, 190	7, 140	7, 080	7, 030	6, 970	6, 920	6, 870
14	6, 820	6, 770	6, 720	6, 670	6, 620	6, 570	6, 530	6, 480	6, 430	6, 390
15	6, 340	6, 300	6, 260	6, 210	6, 170	6, 130	6, 090	6, 050	6, 010	5, 970
16	5, 930	5, 890	5, 850	5, 810	5, 780	5, 740	5, 700	5, 670	5, 630	5, 600
17	5, 560	5, 530	5, 490	5, 460	5, 420	5, 390	5, 360	5, 330	5, 290	5, 260
18	5, 230	5, 200	5, 170	5, 140	5, 110	5, 080	5, 050	5, 020	4, 990	4, 970
19	4, 940	4, 910	4, 880	4, 850	4, 830	4, 800	4, 770	4, 750	4, 720	4, 700
20	4, 670	4, 650	4, 620	4, 600	4, 570	4, 550	4, 520	4, 500	4, 480	4, 450
21	4, 430	4, 410	4, 380	4, 360	4, 340	4, 320	4, 290	4, 270	4, 250	4, 230
22	4, 210	4, 190	4, 170	4, 150	4, 120	4, 100	4, 080	4, 060	4, 040	4, 020
23	4, 010	3, 990	3, 970	3, 950	3, 930	3, 910	3, 890	3, 870	3, 850	3, 840
24	3, 820	3, 800	3, 780	3, 770	3, 750	3, 730	3, 710	3, 700	3, 680	3, 660
25	3, 650	3, 630	3, 610	3, 600	3, 580	3, 560	3, 550	3, 530	3, 520	3, 500
26	3, 490	3, 470	3, 450	3, 440	3, 420	3, 410	3, 390	3, 380	3, 370	3, 350
27	3, 340	3, 320	3, 310	3, 290	3, 280	3, 270	3, 250	3, 240	3, 220	3, 210
28	3, 200	3, 180	3, 170	3, 160	3, 140	3, 130	3, 120	3, 110	3, 090	3, 080
29	3, 070	3, 050	3, 040	3, 030	3, 020	3, 000	2, 990	2, 980	2, 970	2, 960
30	2, 940	2, 930	2, 920	2, 910	2, 900	2, 890	2, 870	2, 860	2, 850	2, 840
31	2, 830	2, 820	2, 810	2, 800	2, 790	2, 770	2, 760	2, 750	2, 740	2, 730
32	2, 720	2, 710	2, 700	2, 690	2, 680	2, 670	2, 660	2, 650	2, 640	2, 630
33	2, 620	2, 610	2, 600	2, 590	2, 580	2, 570	2, 560	2, 550	2, 540	2, 530
34	2, 520	2, 510	2, 500	2, 490	2, 480	2, 470	2, 460	2, 460	2, 450	2, 440
35	2, 430	2, 420	2, 410	2, 400	2, 390	2, 380	2, 370	2, 370	2, 360	2, 350
36	2, 340	2, 330	2, 320	2, 310	2, 310	2, 300	2, 290	2, 280	2, 270	2, 260
37	2, 260	2, 250	2, 240	2, 230	2, 220	2, 220	2, 210	2, 200	2, 190	2, 180
38	2, 180	2, 170	2, 160	2, 150	2, 140	2, 140	2, 130	2, 120	2, 110	2, 110
39	2, 100	2, 090	2, 080	2, 080	2, 070	2, 060	2, 050	2, 050	2, 040	2, 030
40	2, 030	2, 020	2, 010	2, 000	2, 000	1, 990	1, 980	1, 980	1, 970	1, 960
41	1, 960	1, 950	1, 940	1, 940	1, 930	1, 920	1, 910	1, 910	1, 900	1, 890
42	1, 890	1, 880	1, 870	1, 870	1, 860	1, 860	1, 850	1, 840	1, 840	1, 830
43	1, 820	1, 820	1, 810	1, 800	1, 800	1, 790	1, 790	1, 780	1, 770	1, 770
44	1, 760	1, 750	1, 750	1, 740	1, 740	1, 730	1, 720	1, 720	1, 710	1, 710
45	1, 700	1, 690	1, 690	1, 680	1, 680	1, 670	1, 660	1, 660	1, 650	1, 650
46	1, 640	1, 640	1, 630	1, 620	1, 620	1, 610	1, 610	1, 600	1, 600	1, 590
47	1, 590	1, 580	1, 570	1, 570	1, 560	1, 560	1, 550	1, 550	1, 540	1, 540

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

8 minutes after release of balloon; altitude of balloon, 1,700 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	1, 530	1, 530	1, 520	1, 510	1, 510	1, 500	1, 500	1, 490	1, 490	1, 480
49	1, 480	1, 470	1, 470	1, 460	1, 460	1, 450	1, 450	1, 440	1, 440	1, 430
50	1, 430	1, 420	1, 420	1, 410	1, 410	1, 400	1, 400	1, 390	1, 390	1, 380
51	1, 380	1, 370	1, 370	1, 360	1, 360	1, 350	1, 350	1, 340	1, 340	1, 330
52	1, 330	1, 320	1, 320	1, 310	1, 310	1, 300	1, 300	1, 300	1, 290	1, 290
53	1, 280	1, 280	1, 270	1, 270	1, 260	1, 260	1, 250	1, 250	1, 240	1, 240
54	1, 240	1, 230	1, 230	1, 220	1, 220	1, 210	1, 210	1, 200	1, 200	1, 190
55	1, 190	1, 190	1, 180	1, 180	1, 170	1, 170	1, 160	1, 160	1, 160	1, 150
56	1, 150	1, 140	1, 140	1, 130	1, 130	1, 130	1, 120	1, 120	1, 110	1, 110
57	1, 100	1, 100	1, 100	1, 090	1, 090	1, 080	1, 080	1, 070	1, 070	1, 070
58	1, 060	1, 060	1, 050	1, 050	1, 050	1, 040	1, 040	1, 030	1, 030	1, 030
59	1, 020	1, 020	1, 010	1, 010	1, 010	1, 000	1, 000	990	990	990
60	980	980	970	970	970	960	960	950	950	950
61	940	940	930	930	930	920	920	920	910	910
62	900	900	900	890	890	890	880	880	870	870
63	870	860	860	850	850	850	840	840	840	830
64	830	830	820	820	810	810	810	800	800	800
65	790	790	790	780	780	770	770	770	760	760
66	760	750	750	750	740	740	740	730	730	730
67	720	720	710	710	710	700	700	700	690	690
68	690	680	680	680	670	670	670	660	660	660
69	650	650	650	640	640	640	630	630	630	620
70	620	620	610	610	610	600	600	600	590	590
71	590	580	580	580	570	570	570	560	560	560
72	550	550	550	540	540	540	530	530	530	520
73	520	520	510	510	510	500	500	500	490	490
74	490	480	480	480	470	470	470	470	460	460
75	460	450	450	450	440	440	440	430	430	430
76	420	420	420	410	410	410	400	400	400	400
77	390	390	390	380	380	380	370	370	370	360
78	360	360	360	350	350	350	340	340	340	330
79	330	330	320	320	320	320	310	310	310	300
80	300	300	290	290	290	280	280	280	280	270
81	270	270	260	260	260	250	250	250	240	240
82	240	240	230	230	230	220	220	220	210	210
83	210	210	200	200	200	190	190	190	180	180
84	180	180	170	170	170	160	160	160	150	150
85	150	150	140	140	140	130	130	130	120	120
86	120	120	110	110	110	100	100	100	100	90
87	90	90	80	80	80	70	70	70	70	60
88	60	60	50	50	50	40	40	40	40	30
89	30	30	20	20	20	10	10	10	10	0

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

9 minutes after release of balloon; altitude of balloon, 1,900 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	21, 720	21, 280	20, 880	20, 480	20, 100	19, 740	19, 380	19, 040	18, 710	18, 390
6	18, 080	17, 780	17, 490	17, 210	16, 940	16, 680	16, 420	16, 170	15, 930	15, 700
7	15, 470	15, 250	15, 040	14, 830	14, 630	14, 430	14, 240	14, 050	13, 870	13, 690
8	13, 520	13, 350	13, 190	13, 020	12, 870	12, 710	12, 560	12, 420	12, 270	12, 130
9	12, 000	11, 860	11, 730	11, 600	11, 480	11, 350	11, 230	11, 120	11, 000	10, 890
10	10, 780	10, 670	10, 560	10, 450	10, 350	10, 250	10, 150	10, 060	9, 960	9, 870
11	9, 770	9, 680	9, 600	9, 510	9, 420	9, 340	9, 260	9, 170	9, 090	9, 020
12	8, 940	8, 860	8, 790	8, 710	8, 640	8, 570	8, 500	8, 430	8, 360	8, 300
13	8, 230	8, 160	8, 100	8, 040	7, 980	7, 910	7, 850	7, 790	7, 740	7, 680
14	7, 620	7, 560	7, 510	7, 450	7, 400	7, 350	7, 290	7, 240	7, 190	7, 140
15	7, 090	7, 040	6, 990	6, 950	6, 900	6, 850	6, 810	6, 760	6, 710	6, 670
16	6, 630	6, 580	6, 540	6, 500	6, 460	6, 410	6, 370	6, 330	6, 290	6, 250
17	6, 210	6, 180	6, 140	6, 100	6, 060	6, 030	5, 990	5, 950	5, 920	5, 880
18	5, 850	5, 810	5, 780	5, 750	5, 710	5, 680	5, 650	5, 610	5, 580	5, 550
19	5, 520	5, 490	5, 460	5, 430	5, 400	5, 370	5, 340	5, 310	5, 280	5, 250
20	5, 220	5, 190	5, 160	5, 140	5, 110	5, 080	5, 050	5, 030	5, 000	4, 980
21	4, 950	4, 920	4, 900	4, 870	4, 850	4, 820	4, 800	4, 770	4, 750	4, 730
22	4, 700	4, 680	4, 660	4, 630	4, 610	4, 590	4, 560	4, 540	4, 520	4, 500
23	4, 480	4, 450	4, 430	4, 410	4, 390	4, 370	4, 350	4, 330	4, 310	4, 290
24	4, 270	4, 250	4, 230	4, 210	4, 190	4, 170	4, 150	4, 130	4, 110	4, 090
25	4, 070	4, 060	4, 040	4, 020	4, 000	3, 980	3, 970	3, 950	3, 930	3, 910
26	3, 900	3, 880	3, 860	3, 840	3, 830	3, 810	3, 790	3, 780	3, 760	3, 750
27	3, 730	3, 710	3, 700	3, 680	3, 670	3, 650	3, 630	3, 620	3, 600	3, 590
28	3, 570	3, 560	3, 540	3, 530	3, 510	3, 500	3, 480	3, 470	3, 460	3, 440
29	3, 430	3, 410	3, 400	3, 390	3, 370	3, 360	3, 340	3, 330	3, 320	3, 300
30	3, 290	3, 280	3, 260	3, 250	3, 240	3, 230	3, 210	3, 200	3, 190	3, 170
31	3, 160	3, 150	3, 140	3, 120	3, 110	3, 100	3, 090	3, 080	3, 060	3, 050
32	3, 040	3, 030	3, 020	3, 010	2, 990	2, 980	2, 970	2, 960	2, 950	2, 940
33	2, 930	2, 910	2, 900	2, 890	2, 880	2, 870	2, 860	2, 850	2, 840	2, 830
34	2, 820	2, 810	2, 800	2, 790	2, 770	2, 760	2, 750	2, 740	2, 730	2, 720
35	2, 710	2, 700	2, 690	2, 680	2, 670	2, 660	2, 650	2, 640	2, 630	2, 620
36	2, 620	2, 610	2, 600	2, 590	2, 580	2, 570	2, 560	2, 550	2, 540	2, 530
37	2, 520	2, 510	2, 500	2, 490	2, 490	2, 480	2, 470	2, 460	2, 450	2, 440
38	2, 430	2, 420	2, 410	2, 410	2, 400	2, 390	2, 380	2, 370	2, 360	2, 350
39	2, 350	2, 340	2, 330	2, 320	2, 310	2, 300	2, 300	2, 290	2, 280	2, 270
40	2, 260	2, 260	2, 250	2, 240	2, 230	2, 220	2, 220	2, 210	2, 200	2, 190
41	2, 190	2, 180	2, 170	2, 160	2, 160	2, 150	2, 140	2, 130	2, 120	2, 120
42	2, 110	2, 100	2, 100	2, 090	2, 080	2, 070	2, 070	2, 060	2, 050	2, 040
43	2, 040	2, 030	2, 020	2, 020	2, 010	2, 000	2, 000	1, 990	1, 980	1, 970
44	1, 970	1, 960	1, 950	1, 950	1, 940	1, 930	1, 930	1, 920	1, 910	1, 910
45	1, 900	1, 890	1, 890	1, 880	1, 870	1, 870	1, 860	1, 850	1, 850	1, 840
46	1, 830	1, 830	1, 820	1, 820	1, 810	1, 800	1, 800	1, 790	1, 780	1, 780
47	1, 770	1, 770	1, 760	1, 750	1, 750	1, 740	1, 730	1, 730	1, 720	1, 720

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

9 minutes after release of balloon; altitude of balloon, 1,900 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	1,710	1,700	1,700	1,690	1,690	1,680	1,680	1,670	1,660	1,660
49	1,650	1,650	1,640	1,630	1,630	1,620	1,620	1,610	1,610	1,600
50	1,590	1,590	1,580	1,580	1,570	1,570	1,560	1,560	1,550	1,540
51	1,540	1,530	1,530	1,520	1,520	1,510	1,510	1,500	1,500	1,490
52	1,480	1,480	1,470	1,470	1,460	1,460	1,450	1,450	1,440	1,440
53	1,430	1,430	1,420	1,420	1,410	1,410	1,400	1,400	1,390	1,390
54	1,380	1,380	1,370	1,370	1,360	1,360	1,350	1,350	1,340	1,340
55	1,330	1,330	1,320	1,320	1,310	1,310	1,300	1,300	1,290	1,290
56	1,280	1,280	1,270	1,270	1,260	1,260	1,250	1,250	1,240	1,240
57	1,230	1,230	1,220	1,220	1,220	1,210	1,210	1,200	1,200	1,190
58	1,190	1,180	1,180	1,170	1,170	1,160	1,160	1,160	1,150	1,150
59	1,140	1,140	1,130	1,130	1,120	1,120	1,110	1,110	1,110	1,100
60	1,100	1,090	1,090	1,080	1,080	1,080	1,070	1,070	1,060	1,060
61	1,050	1,050	1,040	1,040	1,040	1,030	1,030	1,020	1,020	1,010
62	1,010	1,010	1,000	1,000	990	990	980	980	980	970
63	970	960	960	960	950	950	940	940	930	930
64	930	920	920	910	910	910	900	900	890	890
65	890	880	880	870	870	870	860	860	850	850
66	850	840	840	830	830	830	820	820	810	810
67	810	800	800	790	790	790	780	780	780	770
68	770	760	760	760	750	750	740	740	740	730
69	730	730	720	720	710	710	710	700	700	700
70	690	690	680	680	680	670	670	670	660	660
71	650	650	650	640	640	640	630	630	620	620
72	620	610	610	610	600	600	600	590	590	580
73	580	580	570	570	570	560	560	560	550	550
74	540	540	540	530	530	530	520	520	520	510
75	510	510	500	500	490	490	490	480	480	480
76	470	470	470	460	460	460	450	450	450	440
77	440	440	430	430	420	420	420	410	410	410
78	400	400	400	390	390	390	380	380	380	370
79	370	370	360	360	360	350	350	350	340	340
80	330	330	330	320	320	320	310	310	310	300
81	300	300	290	290	290	280	280	280	270	270
82	270	260	260	260	250	250	250	240	240	240
83	230	230	230	220	220	220	210	210	210	200
84	200	200	190	190	190	180	180	180	170	170
85	170	160	160	160	150	150	150	140	140	140
86	130	130	130	120	120	120	110	110	110	100
87	100	100	90	90	90	80	80	80	70	70
88	70	60	60	60	50	50	50	40	40	40
89	30	30	30	20	20	20	10	10	10	0

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

10 minutes after release of balloon; altitude of balloon, 2,100 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	24,000	23,520	23,080	22,640	22,220	21,820	21,420	21,040	20,670	20,320
6	19,980	19,650	19,330	19,020	18,720	18,430	18,150	17,880	17,610	17,350
7	17,100	16,860	16,620	16,390	16,170	15,950	15,740	15,530	15,330	15,130
8	14,940	14,760	14,570	14,400	14,220	14,050	13,890	13,720	13,570	13,410
9	13,260	13,110	12,970	12,820	12,690	12,550	12,420	12,290	12,160	12,030
10	11,910	11,790	11,670	11,560	11,440	11,330	11,220	11,110	11,010	10,910
11	10,800	10,700	10,610	10,510	10,410	10,320	10,230	10,140	10,050	9,970
12	9,880	9,800	9,710	9,630	9,550	9,470	9,390	9,320	9,240	9,170
13	9,100	9,020	8,950	8,880	8,810	8,750	8,680	8,610	8,550	8,490
14	8,420	8,360	8,300	8,240	8,180	8,120	8,060	8,000	7,950	7,890
15	7,840	7,780	7,730	7,680	7,620	7,570	7,520	7,470	7,420	7,370
16	7,320	7,280	7,230	7,180	7,140	7,090	7,040	7,000	6,960	6,910
17	6,870	6,830	6,780	6,740	6,700	6,660	6,620	6,580	6,540	6,500
18	6,460	6,420	6,390	6,350	6,310	6,280	6,240	6,200	6,170	6,130
19	6,100	6,060	6,030	6,000	5,960	5,930	5,900	5,870	5,830	5,800
20	5,770	5,740	5,710	5,680	5,650	5,620	5,590	5,560	5,530	5,500
21	5,470	5,440	5,410	5,390	5,360	5,330	5,300	5,280	5,250	5,220
22	5,200	5,170	5,150	5,120	5,100	5,070	5,040	5,020	5,000	4,970
23	4,950	4,920	4,900	4,880	4,850	4,830	4,810	4,780	4,760	4,740
24	4,720	4,690	4,670	4,650	4,630	4,610	4,590	4,570	4,540	4,520
25	4,500	4,480	4,460	4,440	4,420	4,400	4,380	4,360	4,340	4,320
26	4,310	4,290	4,270	4,250	4,230	4,210	4,190	4,180	4,160	4,140
27	4,120	4,100	4,090	4,070	4,050	4,030	4,020	4,000	3,980	3,970
28	3,950	3,930	3,920	3,900	3,880	3,870	3,850	3,840	3,820	3,800
29	3,790	3,770	3,760	3,740	3,730	3,710	3,700	3,680	3,670	3,650
30	3,640	3,620	3,610	3,590	3,580	3,570	3,550	3,540	3,520	3,510
31	3,500	3,480	3,470	3,450	3,440	3,430	3,410	3,400	3,390	3,370
32	3,360	3,350	3,330	3,320	3,310	3,300	3,280	3,270	3,260	3,250
33	3,230	3,220	3,210	3,200	3,180	3,170	3,160	3,150	3,140	3,130
34	3,110	3,100	3,090	3,080	3,070	3,060	3,040	3,030	3,020	3,010
35	3,000	2,990	2,980	2,970	2,950	2,940	2,930	2,920	2,910	2,900
36	2,890	2,880	2,870	2,860	2,850	2,840	2,830	2,820	2,810	2,800
37	2,790	2,780	2,770	2,760	2,750	2,740	2,730	2,720	2,710	2,700
38	2,690	2,680	2,670	2,660	2,650	2,640	2,630	2,620	2,610	2,600
39	2,590	2,580	2,570	2,570	2,560	2,550	2,540	2,530	2,520	2,510
40	2,500	2,490	2,480	2,480	2,470	2,460	2,450	2,440	2,430	2,420
41	2,420	2,410	2,400	2,390	2,380	2,370	2,370	2,360	2,350	2,340
42	2,330	2,320	2,320	2,310	2,300	2,290	2,280	2,280	2,270	2,260
43	2,250	2,240	2,240	2,230	2,220	2,210	2,210	2,200	2,190	2,180
44	2,170	2,170	2,160	2,150	2,140	2,140	2,130	2,120	2,110	2,110
45	2,100	2,090	2,090	2,080	2,070	2,060	2,060	2,050	2,040	2,040
46	2,030	2,020	2,010	2,010	2,000	1,990	1,990	1,980	1,970	1,970
47	1,960	1,950	1,940	1,940	1,930	1,920	1,920	1,910	1,900	1,900

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

10 minutes after release of balloon; altitude of balloon, 2,100 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	1,890	1,880	1,880	1,870	1,860	1,860	1,850	1,840	1,840	1,830
49	1,830	1,820	1,810	1,810	1,800	1,790	1,790	1,780	1,770	1,770
50	1,760	1,760	1,750	1,740	1,740	1,730	1,720	1,720	1,710	1,710
51	1,700	1,690	1,690	1,680	1,680	1,670	1,660	1,660	1,650	1,650
52	1,640	1,630	1,630	1,620	1,620	1,610	1,610	1,600	1,590	1,590
53	1,580	1,580	1,570	1,570	1,560	1,550	1,550	1,540	1,540	1,530
54	1,530	1,520	1,510	1,510	1,500	1,500	1,490	1,490	1,480	1,480
55	1,470	1,460	1,460	1,450	1,450	1,440	1,440	1,430	1,430	1,420
56	1,420	1,410	1,410	1,400	1,400	1,390	1,380	1,380	1,370	1,370
57	1,360	1,360	1,350	1,350	1,340	1,340	1,330	1,330	1,320	1,320
58	1,310	1,310	1,300	1,300	1,290	1,290	1,280	1,280	1,270	1,270
59	1,260	1,260	1,250	1,250	1,240	1,240	1,230	1,230	1,220	1,220
60	1,210	1,210	1,200	1,200	1,190	1,190	1,180	1,180	1,170	1,170
61	1,160	1,160	1,150	1,150	1,140	1,140	1,140	1,130	1,130	1,120
62	1,120	1,110	1,110	1,100	1,100	1,090	1,090	1,080	1,080	1,070
63	1,070	1,070	1,060	1,060	1,050	1,050	1,040	1,040	1,030	1,030
64	1,020	1,020	1,020	1,010	1,010	1,000	1,000	990	990	980
65	980	970	970	970	960	960	950	950	940	940
66	930	930	930	920	920	910	910	900	900	900
67	890	890	880	880	870	870	870	860	860	850
68	850	840	840	840	830	830	820	820	810	810
69	810	800	800	790	790	790	780	780	770	770
70	760	760	760	750	750	740	740	740	730	730
71	720	720	710	710	710	700	700	690	690	690
72	680	680	670	670	670	660	660	650	650	650
73	640	640	630	630	630	620	620	610	610	610
74	600	600	590	590	590	580	580	570	570	570
75	560	560	550	550	550	540	540	540	530	530
76	520	520	520	510	510	500	500	500	490	490
77	480	480	480	470	470	470	460	460	450	450
78	450	440	440	430	430	430	420	420	420	410
79	410	400	400	400	390	390	390	380	380	370
80	370	370	360	360	360	350	350	340	340	340
81	330	330	330	320	320	310	310	310	300	300
82	300	290	290	280	280	280	270	270	270	260
83	260	250	250	250	240	240	240	230	230	220
84	220	220	210	210	210	200	200	190	190	190
85	180	180	180	170	170	170	160	160	150	150
86	150	140	140	140	130	130	120	120	120	110
87	110	110	100	100	100	90	90	80	80	80
88	70	70	70	60	60	60	50	50	40	40
89	40	30	30	30	20	20	10	10	10	0

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

11 minutes after release of balloon; altitude of balloon, 2,300 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	26, 290	25, 760	25, 280	24, 790	24, 330	23, 900	23, 460	23, 050	22, 640	22, 260
6	21, 880	21, 520	21, 170	20, 830	20, 500	20, 190	19, 880	19, 580	19, 290	19, 010
7	18, 730	18, 470	18, 210	17, 950	17, 710	17, 470	17, 240	17, 010	16, 790	16, 580
8	16, 370	16, 160	15, 960	15, 770	15, 580	15, 390	15, 210	15, 030	14, 860	14, 690
9	14, 520	14, 360	14, 200	14, 050	13, 890	13, 740	13, 600	13, 460	13, 320	13, 180
10	13, 040	12, 910	12, 780	12, 660	12, 530	12, 410	12, 290	12, 170	12, 060	11, 940
11	11, 830	11, 720	11, 620	11, 510	11, 410	11, 300	11, 200	11, 110	11, 010	10, 910
12	10, 820	10, 730	10, 640	10, 550	10, 460	10, 370	10, 290	10, 210	10, 120	10, 040
13	9, 960	9, 880	9, 810	9, 730	9, 650	9, 580	9, 510	9, 440	9, 360	9, 290
14	9, 220	9, 160	9, 090	9, 020	8, 960	8, 890	8, 830	8, 770	8, 710	8, 640
15	8, 580	8, 520	8, 470	8, 410	8, 350	8, 290	8, 240	8, 180	8, 130	8, 070
16	8, 020	7, 970	7, 920	7, 870	7, 810	7, 760	7, 720	7, 670	7, 620	7, 570
17	7, 520	7, 480	7, 430	7, 380	7, 340	7, 290	7, 250	7, 210	7, 160	7, 120
18	7, 080	7, 040	7, 000	6, 950	6, 910	6, 870	6, 830	6, 800	6, 760	6, 720
19	6, 680	6, 640	6, 600	6, 570	6, 530	6, 490	6, 460	6, 420	6, 390	6, 350
20	6, 320	6, 280	6, 250	6, 220	6, 180	6, 150	6, 120	6, 090	6, 050	6, 020
21	5, 990	5, 960	5, 930	5, 900	5, 870	5, 840	5, 810	5, 780	5, 750	5, 720
22	5, 690	5, 660	5, 640	5, 610	5, 580	5, 550	5, 530	5, 500	5, 470	5, 440
23	5, 420	5, 390	5, 370	5, 340	5, 320	5, 290	5, 260	5, 240	5, 210	5, 190
24	5, 170	5, 140	5, 120	5, 090	5, 070	5, 050	5, 020	5, 000	4, 980	4, 950
25	4, 930	4, 910	4, 890	4, 870	4, 840	4, 820	4, 800	4, 780	4, 760	4, 740
26	4, 720	4, 690	4, 670	4, 650	4, 630	4, 610	4, 590	4, 570	4, 550	4, 530
27	4, 510	4, 490	4, 480	4, 460	4, 440	4, 420	4, 400	4, 380	4, 360	4, 340
28	4, 330	4, 310	4, 290	4, 270	4, 250	4, 240	4, 220	4, 200	4, 180	4, 170
29	4, 150	4, 130	4, 120	4, 100	4, 080	4, 070	4, 050	4, 030	4, 020	4, 000
30	3, 980	3, 970	3, 950	3, 940	3, 920	3, 900	3, 890	3, 870	3, 860	3, 840
31	3, 830	3, 810	3, 800	3, 780	3, 770	3, 750	3, 740	3, 720	3, 710	3, 700
32	3, 680	3, 670	3, 650	3, 640	3, 620	3, 610	3, 600	3, 580	3, 570	3, 560
33	3, 540	3, 530	3, 510	3, 500	3, 490	3, 470	3, 460	3, 450	3, 440	3, 420
34	3, 410	3, 400	3, 380	3, 370	3, 360	3, 350	3, 330	3, 320	3, 310	3, 300
35	3, 280	3, 270	3, 260	3, 250	3, 240	3, 220	3, 210	3, 200	3, 190	3, 180
36	3, 170	3, 150	3, 140	3, 130	3, 120	3, 110	3, 100	3, 090	3, 070	3, 060
37	3, 050	3, 040	3, 030	3, 020	3, 010	3, 000	2, 990	2, 980	2, 970	2, 950
38	2, 940	2, 930	2, 920	2, 910	2, 900	2, 890	2, 880	2, 870	2, 860	2, 850
39	2, 840	2, 830	2, 820	2, 810	2, 800	2, 790	2, 780	2, 770	2, 760	2, 750
40	2, 740	2, 730	2, 720	2, 710	2, 700	2, 690	2, 680	2, 670	2, 660	2, 660
41	2, 650	2, 640	2, 630	2, 620	2, 610	2, 600	2, 590	2, 580	2, 570	2, 560
42	2, 550	2, 550	2, 540	2, 530	2, 520	2, 510	2, 500	2, 490	2, 480	2, 480
43	2, 470	2, 460	2, 450	2, 440	2, 430	2, 420	2, 420	2, 410	2, 400	2, 390
44	2, 380	2, 370	2, 370	2, 360	2, 350	2, 340	2, 330	2, 320	2, 320	2, 310
45	2, 300	2, 290	2, 280	2, 280	2, 270	2, 260	2, 250	2, 240	2, 240	2, 230
46	2, 220	2, 210	2, 210	2, 200	2, 190	2, 180	2, 180	2, 170	2, 160	2, 150
47	2, 140	2, 140	2, 130	2, 120	2, 110	2, 110	2, 100	2, 090	2, 090	2, 080

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

11 minutes after release of balloon; altitude of balloon, 2,300 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	2,070	2,060	2,060	2,050	2,040	2,030	2,030	2,020	2,010	2,010
49	2,000	1,990	1,990	1,980	1,970	1,960	1,960	1,950	1,940	1,940
50	1,930	1,920	1,920	1,910	1,900	1,900	1,890	1,880	1,880	1,870
51	1,860	1,860	1,850	1,840	1,840	1,830	1,820	1,820	1,810	1,800
52	1,800	1,790	1,780	1,780	1,770	1,760	1,760	1,750	1,750	1,740
53	1,730	1,730	1,720	1,710	1,710	1,700	1,700	1,690	1,680	1,680
54	1,670	1,660	1,660	1,650	1,650	1,640	1,630	1,630	1,620	1,620
55	1,610	1,600	1,600	1,590	1,590	1,580	1,570	1,570	1,560	1,560
56	1,550	1,550	1,540	1,530	1,530	1,520	1,520	1,510	1,510	1,500
57	1,490	1,490	1,480	1,480	1,470	1,470	1,460	1,450	1,450	1,440
58	1,440	1,430	1,430	1,420	1,410	1,410	1,400	1,400	1,390	1,390
59	1,380	1,380	1,370	1,370	1,360	1,350	1,350	1,340	1,340	1,330
60	1,330	1,320	1,320	1,310	1,310	1,300	1,300	1,290	1,290	1,280
61	1,270	1,270	1,260	1,260	1,250	1,250	1,240	1,240	1,230	1,230
62	1,220	1,220	1,210	1,210	1,200	1,200	1,190	1,190	1,180	1,180
63	1,170	1,170	1,160	1,160	1,150	1,150	1,140	1,140	1,130	1,130
64	1,120	1,120	1,110	1,110	1,100	1,100	1,090	1,090	1,080	1,080
65	1,070	1,070	1,060	1,060	1,050	1,050	1,040	1,040	1,030	1,030
66	1,020	1,020	1,010	1,010	1,000	1,000	1,000	990	990	980
67	980	970	970	960	960	950	950	940	940	930
68	930	920	920	920	910	910	900	900	890	890
69	880	880	870	870	860	860	860	850	850	840
70	840	830	830	820	820	810	810	810	800	800
71	790	790	780	780	770	770	770	760	760	750
72	750	740	740	730	730	730	720	720	710	710
73	700	700	690	690	690	680	680	670	670	660
74	660	660	650	650	640	640	630	630	620	620
75	620	610	610	600	600	590	590	590	580	580
76	570	570	560	560	560	550	550	540	540	540
77	530	530	520	520	510	510	510	500	500	490
78	490	480	480	480	470	470	460	460	460	450
79	450	440	440	430	430	430	420	420	410	410
80	410	400	400	390	390	380	380	380	370	370
81	360	360	360	350	350	340	340	340	330	330
82	320	320	320	310	310	300	300	290	290	290
83	280	280	270	270	270	260	260	250	250	250
84	240	240	230	230	230	220	220	210	210	210
85	200	200	190	190	190	180	180	170	170	160
86	160	160	150	150	140	140	140	130	130	120
87	120	120	110	110	100	100	100	90	90	80
88	80	80	70	70	60	60	60	50	50	40
89	40	40	30	30	20	20	20	10	10	0

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Horizontal Component of Distance of Pilot Balloon—Continued

12 minutes after release of balloon; altitude of balloon, 2,500 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	28, 580	28, 000	27, 480	26, 950	26, 450	25, 980	25, 500	25, 050	24, 610	24, 190
6	23, 790	23, 390	23, 010	22, 640	22, 290	21, 940	21, 610	21, 280	20, 970	20, 660
7	20, 360	20, 070	19, 790	19, 520	19, 250	18, 990	18, 740	18, 490	18, 250	18, 020
8	17, 790	17, 570	17, 350	17, 140	16, 930	16, 730	16, 530	16, 340	16, 150	15, 960
9	15, 780	15, 610	15, 440	15, 270	15, 100	14, 940	14, 780	14, 630	14, 470	14, 320
10	14, 180	14, 040	13, 890	13, 760	13, 620	13, 490	13, 360	13, 230	13, 110	12, 980
11	12, 860	12, 740	12, 630	12, 510	12, 400	12, 290	12, 180	12, 070	11, 970	11, 860
12	11, 760	11, 660	11, 560	11, 470	11, 370	11, 280	11, 180	11, 090	11, 000	10, 920
13	10, 830	10, 740	10, 660	10, 580	10, 490	10, 410	10, 330	10, 260	10, 180	10, 100
14	10, 030	9, 950	9, 880	9, 810	9, 740	9, 670	9, 600	9, 530	9, 460	9, 400
15	9, 330	9, 270	9, 200	9, 140	9, 080	9, 010	8, 950	8, 890	8, 830	8, 780
16	8, 720	8, 660	8, 610	8, 550	8, 490	8, 440	8, 390	8, 330	8, 280	8, 230
17	8, 180	8, 130	8, 080	8, 030	7, 980	7, 930	7, 880	7, 830	7, 790	7, 740
18	7, 690	7, 650	7, 600	7, 560	7, 520	7, 470	7, 430	7, 390	7, 340	7, 300
19	7, 260	7, 220	7, 180	7, 140	7, 100	7, 060	7, 020	6, 980	6, 940	6, 910
20	6, 870	6, 830	6, 790	6, 760	6, 720	6, 690	6, 650	6, 620	6, 580	6, 550
21	6, 510	6, 480	6, 450	6, 410	6, 380	6, 350	6, 310	6, 280	6, 250	6, 220
22	6, 190	6, 160	6, 130	6, 100	6, 070	6, 040	6, 010	5, 980	5, 950	5, 920
23	5, 890	5, 860	5, 830	5, 810	5, 780	5, 750	5, 720	5, 700	5, 670	5, 640
24	5, 620	5, 590	5, 560	5, 540	5, 510	5, 490	5, 460	5, 440	5, 410	5, 390
25	5, 360	5, 340	5, 310	5, 290	5, 260	5, 240	5, 220	5, 190	5, 170	5, 150
26	5, 130	5, 100	5, 080	5, 060	5, 040	5, 010	4, 990	4, 970	4, 950	4, 930
27	4, 910	4, 890	4, 860	4, 840	4, 820	4, 800	4, 780	4, 760	4, 740	4, 720
28	4, 700	4, 680	4, 660	4, 640	4, 620	4, 600	4, 590	4, 570	4, 550	4, 530
29	4, 510	4, 490	4, 470	4, 460	4, 440	4, 420	4, 400	4, 380	4, 370	4, 350
30	4, 330	4, 310	4, 300	4, 280	4, 260	4, 240	4, 230	4, 210	4, 190	4, 180
31	4, 160	4, 140	4, 130	4, 110	4, 100	4, 080	4, 060	4, 050	4, 030	4, 020
32	4, 000	3, 990	3, 970	3, 950	3, 940	3, 920	3, 910	3, 890	3, 880	3, 860
33	3, 850	3, 840	3, 820	3, 810	3, 790	3, 780	3, 760	3, 750	3, 730	3, 720
34	3, 710	3, 690	3, 680	3, 660	3, 650	3, 640	3, 620	3, 610	3, 600	3, 580
35	3, 570	3, 560	3, 540	3, 530	3, 520	3, 500	3, 490	3, 480	3, 470	3, 450
36	3, 440	3, 430	3, 420	3, 400	3, 390	3, 380	3, 370	3, 350	3, 340	3, 330
37	3, 320	3, 310	3, 290	3, 280	3, 270	3, 260	3, 250	3, 230	3, 220	3, 210
38	3, 200	3, 190	3, 180	3, 170	3, 150	3, 140	3, 130	3, 120	3, 110	3, 100
39	3, 090	3, 080	3, 070	3, 050	3, 040	3, 030	3, 020	3, 010	3, 000	2, 990
40	2, 980	2, 970	2, 960	2, 950	2, 940	2, 930	2, 920	2, 910	2, 900	2, 890
41	2, 880	2, 870	2, 860	2, 850	2, 840	2, 830	2, 820	2, 810	2, 800	2, 790
42	2, 780	2, 770	2, 760	2, 750	2, 740	2, 730	2, 720	2, 710	2, 700	2, 690
43	2, 680	2, 670	2, 660	2, 650	2, 640	2, 630	2, 630	2, 620	2, 610	2, 600
44	2, 590	2, 580	2, 570	2, 560	2, 550	2, 540	2, 540	2, 530	2, 520	2, 510
45	2, 500	2, 490	2, 480	2, 470	2, 470	2, 460	2, 450	2, 440	2, 430	2, 420
46	2, 410	2, 410	2, 400	2, 390	2, 380	2, 370	2, 360	2, 360	2, 350	2, 340
47	2, 330	2, 320	2, 320	2, 310	2, 300	2, 290	2, 280	2, 270	2, 270	2, 260

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

12 minutes after release of balloon; altitude of balloon, 2,500 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	2,250	2,240	2,240	2,230	2,220	2,210	2,200	2,200	2,190	2,180
49	2,170	2,170	2,160	2,150	2,140	2,140	2,130	2,120	2,110	2,110
50	2,100	2,090	2,080	2,080	2,070	2,060	2,050	2,050	2,040	2,030
51	2,020	2,020	2,010	2,000	2,000	1,990	1,980	1,970	1,970	1,960
52	1,950	1,950	1,940	1,930	1,930	1,920	1,910	1,900	1,900	1,890
53	1,880	1,880	1,870	1,860	1,860	1,850	1,840	1,840	1,830	1,820
54	1,820	1,810	1,800	1,800	1,790	1,780	1,780	1,770	1,760	1,760
55	1,750	1,740	1,740	1,730	1,720	1,720	1,710	1,710	1,700	1,690
56	1,690	1,680	1,670	1,670	1,660	1,650	1,650	1,640	1,640	1,630
57	1,620	1,620	1,610	1,600	1,600	1,590	1,590	1,580	1,570	1,570
58	1,560	1,560	1,550	1,540	1,540	1,530	1,530	1,520	1,510	1,510
59	1,500	1,500	1,490	1,480	1,480	1,470	1,470	1,460	1,460	1,450
60	1,440	1,440	1,430	1,430	1,420	1,410	1,410	1,400	1,400	1,390
61	1,390	1,380	1,370	1,370	1,360	1,360	1,350	1,350	1,340	1,340
62	1,330	1,320	1,320	1,310	1,310	1,300	1,300	1,290	1,280	1,280
63	1,270	1,270	1,260	1,260	1,250	1,250	1,240	1,240	1,230	1,220
64	1,220	1,210	1,210	1,200	1,200	1,190	1,190	1,180	1,180	1,170
65	1,170	1,160	1,160	1,150	1,140	1,140	1,130	1,130	1,120	1,120
66	1,110	1,110	1,100	1,100	1,090	1,090	1,080	1,080	1,070	1,070
67	1,060	1,060	1,050	1,050	1,040	1,040	1,030	1,030	1,020	1,020
68	1,010	1,000	1,000	990	990	980	980	970	970	960
69	960	950	950	940	940	930	930	920	920	910
70	910	900	900	900	890	890	880	880	870	870
71	860	860	850	850	840	840	830	830	820	820
72	810	810	800	800	790	790	780	780	770	770
73	760	760	750	750	750	740	740	730	730	720
74	720	710	710	700	700	690	690	680	680	670
75	670	670	660	660	650	650	640	640	630	630
76	620	620	610	610	600	600	600	590	590	580
77	580	570	570	560	560	550	550	540	540	540
78	530	530	520	520	510	510	500	500	500	490
79	490	480	480	470	470	460	460	450	450	450
80	440	440	430	430	420	420	410	410	400	400
81	400	390	390	380	380	370	370	360	360	360
82	350	350	340	340	330	330	320	320	320	310
83	310	300	300	290	290	280	280	280	270	270
84	260	260	250	250	250	240	240	230	230	220
85	220	210	210	210	200	200	190	190	180	180
86	170	170	170	160	160	150	150	140	140	140
87	130	130	120	120	110	110	100	100	100	90
88	90	80	80	70	70	70	60	60	50	50
89	40	40	40	30	30	20	20	10	10	0

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Horizontal Component of Distance of Pilot Balloon—Continued

13 minutes after release of balloon; altitude of balloon, 2,700 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	30, 860	30, 240	29, 670	29, 110	28, 570	28, 050	27, 540	27, 050	26, 580	26, 130
6	25, 690	25, 260	24, 850	24, 460	24, 070	23, 700	23, 340	22, 980	22, 640	22, 310
7	21, 990	21, 680	21, 370	21, 080	20, 790	20, 510	20, 240	19, 970	19, 710	19, 460
8	19, 210	18, 970	18, 740	18, 510	18, 280	18, 070	17, 850	17, 640	17, 440	17, 240
9	17, 050	16, 860	16, 670	16, 490	16, 310	16, 130	15, 960	15, 800	15, 630	15, 470
10	15, 310	15, 160	15, 010	14, 860	14, 710	14, 570	14, 430	14, 290	14, 150	14, 020
11	13, 890	13, 760	13, 640	13, 510	13, 390	13, 270	13, 150	13, 040	12, 920	12, 810
12	12, 700	12, 590	12, 490	12, 380	12, 280	12, 180	12, 080	11, 980	11, 880	11, 790
13	11, 700	11, 600	11, 510	11, 420	11, 330	11, 250	11, 160	11, 080	10, 990	10, 910
14	10, 830	10, 750	10, 670	10, 590	10, 520	10, 440	10, 370	10, 290	10, 220	10, 150
15	10, 080	10, 010	9, 940	9, 870	9, 800	9, 740	9, 670	9, 610	9, 540	9, 480
16	9, 420	9, 350	9, 290	9, 230	9, 170	9, 110	9, 060	9, 000	8, 940	8, 890
17	8, 830	8, 780	8, 720	8, 670	8, 620	8, 560	8, 510	8, 460	8, 410	8, 360
18	8, 310	8, 260	8, 210	8, 160	8, 120	8, 070	8, 020	7, 980	7, 930	7, 890
19	7, 840	7, 800	7, 750	7, 710	7, 670	7, 620	7, 580	7, 540	7, 500	7, 460
20	7, 420	7, 380	7, 340	7, 300	7, 260	7, 220	7, 180	7, 150	7, 110	7, 070
21	7, 030	7, 000	6, 960	6, 930	6, 890	6, 850	6, 820	6, 780	6, 750	6, 720
22	6, 680	6, 650	6, 620	6, 580	6, 550	6, 520	6, 490	6, 450	6, 420	6, 390
23	6, 360	6, 330	6, 300	6, 270	6, 240	6, 210	6, 180	6, 150	6, 120	6, 090
24	6, 060	6, 040	6, 010	5, 980	5, 950	5, 920	5, 900	5, 870	5, 840	5, 820
25	5, 790	5, 760	5, 740	5, 710	5, 690	5, 660	5, 640	5, 610	5, 590	5, 560
26	5, 540	5, 510	5, 490	5, 460	5, 440	5, 420	5, 390	5, 370	5, 350	5, 320
27	5, 300	5, 280	5, 250	5, 230	5, 210	5, 190	5, 160	5, 140	5, 120	5, 100
28	5, 080	5, 060	5, 040	5, 010	4, 990	4, 970	4, 950	4, 930	4, 910	4, 890
29	4, 870	4, 850	4, 830	4, 810	4, 790	4, 770	4, 750	4, 730	4, 710	4, 700
30	4, 680	4, 660	4, 640	4, 620	4, 600	4, 580	4, 570	4, 550	4, 530	4, 510
31	4, 490	4, 480	4, 460	4, 440	4, 420	4, 410	4, 390	4, 370	4, 350	4, 340
32	4, 320	4, 300	4, 290	4, 270	4, 250	4, 240	4, 220	4, 210	4, 190	4, 170
33	4, 160	4, 140	4, 130	4, 110	4, 090	4, 080	4, 060	4, 050	4, 030	4, 020
34	4, 000	3, 990	3, 970	3, 960	3, 940	3, 930	3, 910	3, 900	3, 880	3, 870
35	3, 860	3, 840	3, 830	3, 810	3, 800	3, 790	3, 770	3, 760	3, 740	3, 730
36	3, 720	3, 700	3, 690	3, 680	3, 660	3, 650	3, 640	3, 620	3, 610	3, 600
37	3, 580	3, 570	3, 560	3, 540	3, 530	3, 520	3, 510	3, 490	3, 480	3, 470
38	3, 460	3, 440	3, 430	3, 420	3, 410	3, 390	3, 380	3, 370	3, 360	3, 350
39	3, 330	3, 320	3, 310	3, 300	3, 290	3, 280	3, 260	3, 250	3, 240	3, 230
40	3, 220	3, 210	3, 190	3, 180	3, 170	3, 160	3, 150	3, 140	3, 130	3, 120
41	3, 110	3, 100	3, 080	3, 070	3, 060	3, 050	3, 040	3, 030	3, 020	3, 010
42	3, 000	2, 990	2, 980	2, 970	2, 960	2, 950	2, 940	2, 930	2, 920	2, 910
43	2, 900	2, 890	2, 880	2, 870	2, 860	2, 850	2, 840	2, 830	2, 820	2, 810
44	2, 800	2, 790	2, 780	2, 770	2, 760	2, 750	2, 740	2, 730	2, 720	2, 710
45	2, 700	2, 690	2, 680	2, 670	2, 660	2, 650	2, 640	2, 630	2, 630	2, 620
46	2, 610	2, 600	2, 590	2, 580	2, 570	2, 560	2, 550	2, 540	2, 540	2, 530
47	2, 520	2, 510	2, 500	2, 490	2, 480	2, 470	2, 470	2, 460	2, 450	2, 440

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

13 minutes after release of balloon; altitude of balloon, 2,700 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	2,430	2,420	2,410	2,410	2,400	2,390	2,380	2,370	2,360	2,360
49	2,350	2,340	2,330	2,320	2,310	2,310	2,300	2,290	2,280	2,270
50	2,270	2,260	2,250	2,240	2,230	2,230	2,220	2,210	2,200	2,190
51	2,190	2,180	2,170	2,160	2,160	2,150	2,140	2,130	2,120	2,120
52	2,110	2,100	2,090	2,090	2,080	2,070	2,060	2,060	2,050	2,040
53	2,030	2,030	2,020	2,010	2,010	2,000	1,990	1,980	1,980	1,970
54	1,960	1,950	1,950	1,940	1,930	1,930	1,920	1,910	1,900	1,900
55	1,890	1,880	1,880	1,870	1,860	1,860	1,850	1,840	1,830	1,830
56	1,820	1,810	1,810	1,800	1,790	1,790	1,780	1,770	1,770	1,760
57	1,750	1,750	1,740	1,730	1,730	1,720	1,710	1,710	1,700	1,690
58	1,690	1,680	1,670	1,670	1,660	1,650	1,650	1,640	1,640	1,630
59	1,620	1,620	1,610	1,600	1,600	1,590	1,580	1,580	1,570	1,570
60	1,560	1,550	1,550	1,540	1,530	1,530	1,520	1,520	1,510	1,500
61	1,500	1,490	1,480	1,480	1,470	1,470	1,460	1,450	1,450	1,440
62	1,440	1,430	1,420	1,420	1,410	1,410	1,400	1,390	1,390	1,380
63	1,380	1,370	1,360	1,360	1,350	1,350	1,340	1,330	1,330	1,320
64	1,320	1,310	1,310	1,300	1,290	1,290	1,280	1,280	1,270	1,260
65	1,260	1,250	1,250	1,240	1,240	1,230	1,220	1,220	1,210	1,210
66	1,200	1,200	1,190	1,190	1,180	1,170	1,170	1,160	1,160	1,150
67	1,150	1,140	1,140	1,130	1,120	1,120	1,110	1,110	1,100	1,100
68	1,090	1,090	1,080	1,070	1,070	1,060	1,060	1,050	1,050	1,040
69	1,040	1,030	1,030	1,020	1,010	1,010	1,000	1,000	990	990
70	980	980	970	970	960	960	950	950	940	940
71	930	920	920	910	910	900	900	890	890	880
72	880	870	870	860	860	850	850	840	840	830
73	830	820	820	810	800	800	790	790	780	780
74	770	770	760	760	750	750	740	740	730	730
75	720	720	710	710	700	700	690	690	680	680
76	670	670	660	660	650	650	640	640	630	630
77	620	620	610	610	600	600	590	590	580	580
78	570	570	560	560	550	550	540	540	530	530
79	520	520	520	510	510	500	500	490	490	480
80	480	470	470	460	460	450	450	440	440	430
81	430	420	420	410	410	400	400	390	390	380
82	380	370	370	370	360	360	350	350	340	340
83	330	330	320	320	310	310	300	300	290	290
84	280	280	270	270	260	260	260	250	250	240
85	240	230	230	220	220	210	210	200	200	190
86	190	180	180	170	170	170	160	160	150	150
87	140	140	130	130	120	120	110	110	100	100
88	90	90	80	80	80	70	70	60	60	50
89	50	40	40	30	30	20	20	10	10	0

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

14 minutes after release of balloon; altitude of balloon, 2,900 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	33, 150	32, 480	31, 870	31, 260	30, 680	30, 130	29, 580	29, 060	28, 550	28, 060
6	27, 590	27, 140	26, 700	26, 270	25, 850	25, 450	25, 060	24, 690	24, 320	23, 960
7	23, 620	23, 280	22, 960	22, 640	22, 330	22, 030	21, 730	21, 450	21, 170	20, 900
8	20, 630	20, 380	20, 120	19, 880	19, 640	19, 400	19, 180	18, 950	18, 730	18, 520
9	18, 310	18, 110	17, 910	17, 710	17, 520	17, 330	17, 150	16, 970	16, 790	16, 620
10	16, 450	16, 280	16, 120	15, 960	15, 800	15, 650	15, 500	15, 350	15, 200	15, 060
11	14, 920	14, 780	14, 650	14, 510	14, 380	14, 250	14, 130	14, 000	13, 880	13, 760
12	13, 640	13, 530	13, 410	13, 300	13, 190	13, 080	12, 970	12, 870	12, 760	12, 660
13	12, 560	12, 460	12, 360	12, 270	12, 170	12, 080	11, 990	11, 900	11, 810	11, 720
14	11, 630	11, 550	11, 460	11, 380	11, 290	11, 210	11, 130	11, 050	10, 980	10, 900
15	10, 820	10, 750	10, 670	10, 600	10, 530	10, 460	10, 390	10, 320	10, 250	10, 180
16	10, 110	10, 050	9, 980	9, 920	9, 850	9, 790	9, 730	9, 670	9, 610	9, 550
17	9, 490	9, 430	9, 370	9, 310	9, 250	9, 200	9, 140	9, 090	9, 030	8, 980
18	8, 930	8, 870	8, 820	8, 770	8, 720	8, 670	8, 620	8, 570	8, 520	8, 470
19	8, 420	8, 370	8, 330	8, 280	8, 240	8, 190	8, 140	8, 100	8, 060	8, 010
20	7, 970	7, 920	7, 880	7, 840	7, 800	7, 760	7, 720	7, 670	7, 630	7, 590
21	7, 550	7, 520	7, 480	7, 440	7, 400	7, 360	7, 320	7, 290	7, 250	7, 210
22	7, 180	7, 140	7, 110	7, 070	7, 040	7, 000	6, 970	6, 930	6, 900	6, 870
23	6, 830	6, 800	6, 770	6, 730	6, 700	6, 670	6, 640	6, 610	6, 580	6, 540
24	6, 510	6, 480	6, 450	6, 420	6, 390	6, 360	6, 330	6, 310	6, 280	6, 250
25	6, 220	6, 190	6, 160	6, 130	6, 110	6, 080	6, 050	6, 030	6, 000	5, 970
26	5, 950	5, 920	5, 890	5, 870	5, 840	5, 820	5, 790	5, 770	5, 740	5, 720
27	5, 690	5, 670	5, 640	5, 620	5, 590	5, 570	5, 550	5, 520	5, 500	5, 480
28	5, 450	5, 430	5, 410	5, 390	5, 360	5, 340	5, 320	5, 300	5, 280	5, 250
29	5, 230	5, 210	5, 190	5, 170	5, 150	5, 130	5, 100	5, 080	5, 060	5, 040
30	5, 020	5, 000	4, 980	4, 960	4, 940	4, 920	4, 900	4, 880	4, 860	4, 850
31	4, 830	4, 810	4, 790	4, 770	4, 750	4, 730	4, 710	4, 700	4, 680	4, 660
32	4, 640	4, 620	4, 610	4, 590	4, 570	4, 550	4, 530	4, 520	4, 500	4, 480
33	4, 470	4, 450	4, 430	4, 410	4, 400	4, 380	4, 360	4, 350	4, 330	4, 320
34	4, 300	4, 280	4, 270	4, 250	4, 240	4, 220	4, 200	4, 190	4, 170	4, 160
35	4, 140	4, 130	4, 110	4, 100	4, 080	4, 070	4, 050	4, 040	4, 020	4, 010
36	3, 990	3, 980	3, 960	3, 950	3, 930	3, 920	3, 900	3, 890	3, 880	3, 860
37	3, 850	3, 830	3, 820	3, 810	3, 790	3, 780	3, 770	3, 750	3, 740	3, 730
38	3, 710	3, 700	3, 690	3, 670	3, 660	3, 650	3, 630	3, 620	3, 610	3, 590
39	3, 580	3, 570	3, 560	3, 540	3, 530	3, 520	3, 510	3, 490	3, 480	3, 470
40	3, 460	3, 440	3, 430	3, 420	3, 410	3, 400	3, 380	3, 370	3, 360	3, 350
41	3, 340	3, 320	3, 310	3, 300	3, 290	3, 280	3, 270	3, 250	3, 240	3, 230
42	3, 220	3, 210	3, 200	3, 190	3, 180	3, 160	3, 150	3, 140	3, 130	3, 120
43	3, 110	3, 100	3, 090	3, 080	3, 070	3, 060	3, 050	3, 030	3, 020	3, 010
44	3, 000	2, 990	2, 980	2, 970	2, 960	2, 950	2, 940	2, 930	2, 920	2, 910
45	2, 900	2, 890	2, 880	2, 870	2, 860	2, 850	2, 840	2, 830	2, 820	2, 810
46	2, 800	2, 790	2, 780	2, 770	2, 760	2, 750	2, 740	2, 730	2, 720	2, 710
47	2, 700	2, 690	2, 690	2, 680	2, 670	2, 660	2, 650	2, 640	2, 630	2, 620

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

14 minutes after release of balloon; altitude of balloon, 2,900 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	2,610	2,600	2,590	2,580	2,570	2,570	2,560	2,550	2,540	2,530
49	2,520	2,510	2,500	2,490	2,490	2,480	2,470	2,460	2,450	2,440
50	2,430	2,420	2,420	2,410	2,400	2,390	2,380	2,370	2,370	2,360
51	2,350	2,340	2,330	2,320	2,320	2,310	2,300	2,290	2,280	2,270
52	2,270	2,260	2,250	2,240	2,230	2,230	2,220	2,210	2,200	2,190
53	2,190	2,180	2,170	2,160	2,150	2,150	2,140	2,130	2,120	2,110
54	2,110	2,100	2,090	2,080	2,080	2,070	2,060	2,050	2,050	2,040
55	2,030	2,020	2,020	2,010	2,000	1,990	1,990	1,980	1,970	1,960
56	1,960	1,950	1,940	1,930	1,930	1,920	1,910	1,910	1,900	1,890
57	1,880	1,880	1,870	1,860	1,850	1,850	1,840	1,830	1,830	1,820
58	1,810	1,800	1,800	1,790	1,780	1,780	1,770	1,760	1,760	1,750
59	1,740	1,740	1,730	1,720	1,720	1,710	1,700	1,690	1,690	1,680
60	1,670	1,670	1,660	1,650	1,650	1,640	1,630	1,630	1,620	1,610
61	1,610	1,600	1,590	1,590	1,580	1,570	1,570	1,560	1,550	1,550
62	1,540	1,540	1,530	1,520	1,520	1,510	1,500	1,500	1,490	1,480
63	1,480	1,470	1,460	1,460	1,450	1,450	1,440	1,430	1,430	1,420
64	1,410	1,410	1,400	1,400	1,390	1,380	1,380	1,370	1,360	1,360
65	1,350	1,350	1,340	1,330	1,330	1,320	1,320	1,310	1,300	1,300
66	1,290	1,280	1,280	1,270	1,270	1,260	1,250	1,250	1,240	1,240
67	1,230	1,220	1,220	1,210	1,210	1,200	1,200	1,190	1,180	1,180
68	1,170	1,170	1,160	1,150	1,150	1,140	1,140	1,130	1,120	1,120
69	1,110	1,110	1,100	1,100	1,090	1,080	1,080	1,070	1,070	1,060
70	1,060	1,050	1,040	1,040	1,030	1,030	1,020	1,020	1,010	1,000
71	1,000	990	990	980	980	970	960	960	950	950
72	940	940	930	930	920	910	910	900	900	890
73	890	880	880	870	860	860	850	850	840	840
74	830	830	820	820	810	800	800	790	790	780
75	780	770	770	760	760	750	740	740	730	730
76	720	720	710	710	700	700	690	690	680	670
77	670	660	660	650	650	640	640	630	630	620
78	620	610	610	600	600	590	580	580	570	570
79	560	560	550	550	540	540	530	530	520	520
80	510	510	500	500	490	490	480	480	470	460
81	460	450	450	440	440	430	430	420	420	410
82	410	400	400	390	390	380	380	370	370	360
83	360	350	350	340	340	330	330	320	310	310
84	300	300	290	290	280	280	270	270	260	260
85	250	250	240	240	230	230	220	220	210	210
86	200	200	190	190	180	180	170	170	160	160
87	150	150	140	140	130	130	120	120	110	110
88	100	100	90	90	80	80	70	70	60	60
89	50	50	40	40	30	30	20	20	10	0

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

15 minutes after release of balloon; altitude of balloon, 3,100 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	35, 430	34, 720	34, 070	33, 420	32, 800	32, 210	31, 620	31, 060	30, 520	30, 000
6	29, 490	29, 010	28, 540	28, 080	27, 640	27, 210	26, 790	26, 390	26, 000	25, 620
7	25, 250	24, 890	24, 540	24, 200	23, 870	23, 550	23, 230	22, 930	22, 630	22, 340
8	22, 060	21, 780	21, 510	21, 250	20, 990	20, 740	20, 500	20, 260	20, 020	19, 800
9	19, 570	19, 350	19, 140	18, 930	18, 730	18, 520	18, 330	18, 140	17, 950	17, 760
10	17, 580	17, 400	17, 230	17, 060	16, 890	16, 730	16, 560	16, 410	16, 250	16, 100
11	15, 950	15, 800	15, 660	15, 510	15, 370	15, 240	15, 100	14, 970	14, 840	14, 710
12	14, 580	14, 460	14, 340	14, 220	14, 100	13, 980	13, 870	13, 760	13, 640	13, 540
13	13, 430	13, 320	13, 220	13, 110	13, 010	12, 910	12, 810	12, 720	12, 620	12, 530
14	12, 430	12, 340	12, 250	12, 160	12, 070	11, 990	11, 900	11, 820	11, 730	11, 650
15	11, 570	11, 490	11, 410	11, 330	11, 250	11, 180	11, 100	11, 030	10, 950	10, 880
16	10, 810	10, 740	10, 670	10, 600	10, 530	10, 470	10, 400	10, 330	10, 270	10, 200
17	10, 140	10, 080	10, 010	9, 950	9, 890	9, 830	9, 770	9, 710	9, 660	9, 600
18	9, 540	9, 480	9, 430	9, 370	9, 320	9, 260	9, 210	9, 160	9, 110	9, 050
19	9, 000	8, 950	8, 900	8, 850	8, 800	8, 750	8, 710	8, 660	8, 610	8, 560
20	8, 520	8, 470	8, 430	8, 380	8, 340	8, 290	8, 250	8, 200	8, 160	8, 120
21	8, 080	8, 030	7, 990	7, 950	7, 910	7, 870	7, 830	7, 790	7, 750	7, 710
22	7, 670	7, 630	7, 600	7, 560	7, 520	7, 480	7, 450	7, 410	7, 370	7, 340
23	7, 300	7, 270	7, 230	7, 200	7, 160	7, 130	7, 100	7, 060	7, 030	7, 000
24	6, 960	6, 930	6, 900	6, 870	6, 830	6, 800	6, 770	6, 740	6, 710	6, 680
25	6, 650	6, 620	6, 590	6, 560	6, 530	6, 500	6, 470	6, 440	6, 410	6, 380
26	6, 360	6, 330	6, 300	6, 270	6, 240	6, 220	6, 190	6, 160	6, 140	6, 110
27	6, 080	6, 060	6, 030	6, 010	5, 980	5, 960	5, 930	5, 900	5, 880	5, 850
28	5, 830	5, 810	5, 780	5, 760	5, 730	5, 710	5, 690	5, 660	5, 640	5, 620
29	5, 590	5, 570	5, 550	5, 520	5, 500	5, 480	5, 460	5, 430	5, 410	5, 390
30	5, 370	5, 350	5, 330	5, 300	5, 280	5, 260	5, 240	5, 220	5, 200	5, 180
31	5, 160	5, 140	5, 120	5, 100	5, 080	5, 060	5, 040	5, 020	5, 000	4, 980
32	4, 960	4, 940	4, 920	4, 900	4, 880	4, 870	4, 850	4, 830	4, 810	4, 790
33	4, 770	4, 760	4, 740	4, 720	4, 700	4, 680	4, 670	4, 650	4, 630	4, 610
34	4, 600	4, 580	4, 560	4, 540	4, 530	4, 510	4, 490	4, 480	4, 460	4, 440
35	4, 430	4, 410	4, 390	4, 380	4, 360	4, 350	4, 330	4, 310	4, 300	4, 280
36	4, 270	4, 250	4, 240	4, 220	4, 200	4, 190	4, 170	4, 160	4, 140	4, 130
37	4, 110	4, 100	4, 080	4, 070	4, 050	4, 040	4, 030	4, 010	4, 000	3, 980
38	3, 970	3, 950	3, 940	3, 930	3, 910	3, 900	3, 880	3, 870	3, 860	3, 840
39	3, 830	3, 810	3, 800	3, 790	3, 770	3, 760	3, 750	3, 730	3, 720	3, 710
40	3, 690	3, 680	3, 670	3, 660	3, 640	3, 630	3, 620	3, 600	3, 590	3, 580
41	3, 570	3, 550	3, 540	3, 530	3, 520	3, 500	3, 490	3, 480	3, 470	3, 450
42	3, 440	3, 430	3, 420	3, 410	3, 390	3, 380	3, 370	3, 360	3, 350	3, 340
43	3, 320	3, 310	3, 300	3, 290	3, 280	3, 270	3, 260	3, 240	3, 230	3, 220
44	3, 210	3, 200	3, 190	3, 180	3, 170	3, 150	3, 140	3, 130	3, 120	3, 110
45	3, 100	3, 090	3, 080	3, 070	3, 060	3, 050	3, 040	3, 030	3, 010	3, 000
46	2, 990	2, 980	2, 970	2, 960	2, 950	2, 940	2, 930	2, 920	2, 910	2, 900
47	2, 890	2, 880	2, 870	2, 860	2, 850	2, 840	2, 830	2, 820	2, 810	2, 800

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

15 minutes after release of balloon; altitude of balloon, 3,100 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	2,790	2,780	2,770	2,760	2,750	2,740	2,730	2,720	2,710	2,700
49	2,690	2,690	2,680	2,670	2,660	2,650	2,640	2,630	2,620	2,610
50	2,600	2,590	2,580	2,570	2,560	2,560	2,550	2,540	2,530	2,520
51	2,510	2,500	2,490	2,480	2,470	2,470	2,460	2,450	2,440	2,430
52	2,420	2,410	2,400	2,400	2,390	2,380	2,370	2,360	2,350	2,340
53	2,340	2,330	2,320	2,310	2,300	2,290	2,290	2,280	2,270	2,260
54	2,250	2,240	2,240	2,230	2,220	2,210	2,200	2,190	2,190	2,180
55	2,170	2,160	2,150	2,150	2,140	2,130	2,120	2,110	2,110	2,100
56	2,090	2,080	2,080	2,070	2,060	2,050	2,040	2,040	2,030	2,020
57	2,010	2,010	2,000	1,990	1,980	1,980	1,970	1,960	1,950	1,940
58	1,940	1,930	1,920	1,910	1,910	1,900	1,890	1,880	1,880	1,870
59	1,860	1,860	1,850	1,840	1,830	1,830	1,820	1,810	1,800	1,800
60	1,790	1,780	1,780	1,770	1,760	1,750	1,750	1,740	1,730	1,730
61	1,720	1,710	1,700	1,700	1,690	1,680	1,680	1,670	1,660	1,660
62	1,650	1,640	1,630	1,630	1,620	1,610	1,610	1,600	1,590	1,590
63	1,580	1,570	1,570	1,560	1,550	1,550	1,540	1,530	1,530	1,520
64	1,510	1,510	1,500	1,490	1,490	1,480	1,470	1,470	1,460	1,450
65	1,450	1,440	1,430	1,430	1,420	1,410	1,410	1,400	1,390	1,390
66	1,380	1,370	1,370	1,360	1,350	1,350	1,340	1,340	1,330	1,320
67	1,320	1,310	1,300	1,300	1,290	1,280	1,280	1,270	1,270	1,260
68	1,250	1,250	1,240	1,230	1,230	1,220	1,210	1,210	1,200	1,200
69	1,190	1,180	1,180	1,170	1,170	1,160	1,150	1,150	1,140	1,130
70	1,130	1,120	1,120	1,110	1,100	1,100	1,090	1,090	1,080	1,070
71	1,070	1,060	1,060	1,050	1,040	1,040	1,030	1,030	1,020	1,020
72	1,010	1,000	1,000	990	980	980	970	970	960	950
73	950	940	940	930	920	920	910	910	900	890
74	890	880	880	870	870	860	850	850	840	840
75	830	820	820	810	810	800	800	790	780	780
76	770	770	760	760	750	740	740	730	730	720
77	720	710	700	700	690	690	680	680	670	660
78	660	650	650	640	640	630	620	620	610	610
79	600	600	590	590	580	570	570	560	560	550
80	550	540	540	530	520	520	510	510	500	500
81	490	490	480	470	470	460	460	450	450	440
82	440	430	420	420	410	410	400	400	390	390
83	380	380	370	360	360	350	350	340	340	330
84	330	320	310	310	300	300	290	290	280	280
85	270	270	260	250	250	240	240	230	230	220
86	220	210	210	200	190	190	180	180	170	170
87	160	160	150	150	140	140	130	120	120	110
88	110	110	100	90	90	80	80	70	60	60
89	50	50	40	40	30	30	20	20	10	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

16 minutes after release of balloon; altitude of balloon, 3,300 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	37, 720	36, 960	36, 270	35, 570	34, 910	34, 290	33, 660	33, 070	32, 490	31, 930
6	31, 400	30, 880	30, 380	29, 890	29, 420	28, 960	28, 520	28, 090	27, 670	27, 270
7	26, 880	26, 490	26, 120	25, 760	25, 410	25, 070	24, 730	24, 410	24, 090	23, 780
8	23, 480	23, 190	22, 900	22, 620	22, 350	22, 080	21, 820	21, 570	21, 320	21, 070
9	20, 840	20, 600	20, 370	20, 150	19, 930	19, 720	19, 510	19, 310	19, 110	18, 910
10	18, 720	18, 530	18, 340	18, 160	17, 980	17, 810	17, 630	17, 460	17, 300	17, 140
11	16, 980	16, 820	16, 670	16, 510	16, 370	16, 220	16, 080	15, 940	15, 800	15, 660
12	15, 530	15, 390	15, 260	15, 140	15, 010	14, 890	14, 760	14, 640	14, 520	14, 410
13	14, 290	14, 180	14, 070	13, 960	13, 850	13, 750	13, 640	13, 540	13, 440	13, 330
14	13, 240	13, 140	13, 040	12, 950	12, 850	12, 760	12, 670	12, 580	12, 490	12, 400
15	12, 320	12, 230	12, 150	12, 060	11, 980	11, 900	11, 820	11, 740	11, 660	11, 580
16	11, 510	11, 430	11, 360	11, 290	11, 210	11, 140	11, 070	11, 000	10, 930	10, 860
17	10, 790	10, 730	10, 660	10, 590	10, 530	10, 470	10, 400	10, 340	10, 280	10, 220
18	10, 160	10, 100	10, 040	9, 980	9, 920	9, 860	9, 810	9, 750	9, 690	9, 640
19	9, 580	9, 530	9, 480	9, 420	9, 370	9, 320	9, 270	9, 220	9, 170	9, 120
20	9, 070	9, 020	8, 970	8, 920	8, 870	8, 830	8, 780	8, 730	8, 690	8, 640
21	8, 600	8, 550	8, 510	8, 460	8, 420	8, 380	8, 330	8, 290	8, 250	8, 210
22	8, 170	8, 130	8, 090	8, 050	8, 010	7, 970	7, 930	7, 890	7, 850	7, 810
23	7, 770	7, 740	7, 700	7, 660	7, 630	7, 590	7, 550	7, 520	7, 480	7, 450
24	7, 410	7, 380	7, 340	7, 310	7, 270	7, 240	7, 210	7, 170	7, 140	7, 110
25	7, 080	7, 040	7, 010	6, 980	6, 950	6, 920	6, 890	6, 860	6, 830	6, 800
26	6, 770	6, 740	6, 710	6, 680	6, 650	6, 620	6, 590	6, 560	6, 530	6, 500
27	6, 480	6, 450	6, 420	6, 390	6, 370	6, 340	6, 310	6, 290	6, 260	6, 230
28	6, 210	6, 180	6, 150	6, 130	6, 100	6, 080	6, 050	6, 030	6, 000	5, 980
29	5, 950	5, 930	5, 900	5, 880	5, 860	5, 830	5, 810	5, 790	5, 760	5, 740
30	5, 720	5, 690	5, 670	5, 650	5, 620	5, 600	5, 580	5, 560	5, 540	5, 510
31	5, 490	5, 470	5, 450	5, 430	5, 410	5, 390	5, 360	5, 340	5, 320	5, 300
32	5, 280	5, 260	5, 240	5, 220	5, 200	5, 180	5, 160	5, 140	5, 120	5, 100
33	5, 080	5, 060	5, 040	5, 020	5, 000	4, 990	4, 970	4, 950	4, 930	4, 910
34	4, 890	4, 870	4, 860	4, 840	4, 820	4, 800	4, 780	4, 770	4, 750	4, 730
35	4, 710	4, 700	4, 680	4, 660	4, 640	4, 630	4, 610	4, 590	4, 580	4, 560
36	4, 540	4, 530	4, 510	4, 490	4, 480	4, 460	4, 440	4, 430	4, 410	4, 400
37	4, 380	4, 360	4, 350	4, 330	4, 320	4, 300	4, 290	4, 270	4, 250	4, 240
38	4, 220	4, 210	4, 190	4, 180	4, 160	4, 150	4, 130	4, 120	4, 100	4, 090
39	4, 080	4, 060	4, 050	4, 030	4, 020	4, 000	3, 990	3, 970	3, 960	3, 950
40	3, 930	3, 920	3, 900	3, 890	3, 880	3, 860	3, 850	3, 840	3, 820	3, 810
41	3, 800	3, 780	3, 770	3, 760	3, 740	3, 730	3, 720	3, 700	3, 690	3, 680
42	3, 660	3, 650	3, 640	3, 630	3, 610	3, 600	3, 590	3, 580	3, 560	3, 550
43	3, 540	3, 530	3, 510	3, 500	3, 490	3, 480	3, 470	3, 450	3, 440	3, 430
44	3, 420	3, 410	3, 390	3, 380	3, 370	3, 360	3, 350	3, 330	3, 320	3, 310
45	3, 300	3, 290	3, 280	3, 270	3, 250	3, 240	3, 230	3, 220	3, 210	3, 200
46	3, 190	3, 180	3, 160	3, 150	3, 140	3, 130	3, 120	3, 110	3, 100	3, 090
47	3, 080	3, 070	3, 060	3, 050	3, 030	3, 020	3, 010	3, 000	2, 990	2, 980

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

16 minutes after release of balloon; altitude of balloon, 3,300 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	2,970	2,960	2,950	2,940	2,930	2,920	2,910	2,900	2,890	2,880
49	2,870	2,860	2,850	2,840	2,830	2,820	2,810	2,800	2,790	2,780
50	2,770	2,760	2,750	2,740	2,730	2,720	2,710	2,700	2,690	2,680
51	2,670	2,660	2,650	2,640	2,630	2,620	2,620	2,610	2,600	2,590
52	2,580	2,570	2,560	2,550	2,540	2,530	2,520	2,510	2,500	2,500
53	2,490	2,480	2,470	2,460	2,450	2,440	2,430	2,420	2,420	2,410
54	2,400	2,390	2,380	2,370	2,360	2,350	2,350	2,340	2,330	2,320
55	2,310	2,300	2,290	2,280	2,280	2,270	2,260	2,250	2,240	2,230
56	2,230	2,220	2,210	2,200	2,190	2,180	2,180	2,170	2,160	2,150
57	2,140	2,130	2,130	2,120	2,110	2,100	2,090	2,090	2,080	2,070
58	2,060	2,050	2,050	2,040	2,030	2,020	2,010	2,010	2,000	1,990
59	1,980	1,980	1,970	1,960	1,950	1,940	1,940	1,930	1,920	1,910
60	1,910	1,900	1,890	1,880	1,870	1,870	1,860	1,850	1,840	1,840
61	1,830	1,820	1,810	1,810	1,800	1,790	1,780	1,780	1,770	1,760
62	1,750	1,750	1,740	1,730	1,730	1,720	1,710	1,700	1,700	1,690
63	1,680	1,670	1,670	1,660	1,650	1,650	1,640	1,630	1,620	1,620
64	1,610	1,600	1,600	1,590	1,580	1,570	1,570	1,560	1,550	1,550
65	1,540	1,530	1,520	1,520	1,510	1,500	1,500	1,490	1,480	1,480
66	1,470	1,460	1,460	1,450	1,440	1,430	1,430	1,420	1,410	1,410
67	1,400	1,390	1,390	1,380	1,370	1,370	1,360	1,350	1,350	1,340
68	1,330	1,330	1,320	1,310	1,310	1,300	1,290	1,290	1,280	1,270
69	1,270	1,260	1,250	1,250	1,240	1,230	1,230	1,220	1,210	1,210
70	1,200	1,190	1,190	1,180	1,180	1,170	1,160	1,160	1,150	1,140
71	1,140	1,130	1,120	1,120	1,110	1,100	1,100	1,090	1,090	1,080
72	1,070	1,070	1,060	1,050	1,050	1,040	1,030	1,030	1,020	1,020
73	1,010	1,000	1,000	990	980	980	970	960	960	950
74	950	940	930	930	920	920	910	900	900	890
75	880	880	870	870	860	850	850	840	830	830
76	820	820	810	800	800	790	790	780	770	770
77	760	760	750	740	740	730	730	720	710	710
78	700	700	690	680	680	670	670	660	650	650
79	640	640	630	620	620	610	610	600	590	590
80	580	580	570	560	560	550	550	540	530	530
81	520	520	510	500	500	490	490	480	480	470
82	460	460	450	450	440	430	430	420	420	410
83	410	400	390	390	380	380	370	360	360	350
84	350	340	340	330	320	320	310	310	300	290
85	290	280	280	270	270	260	250	250	240	240
86	230	230	220	210	210	200	200	190	180	180
87	170	170	160	160	150	140	140	130	130	120
88	120	110	100	100	90	90	80	70	70	60
89	60	50	50	40	30	30	20	20	10	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

17 minutes after release of balloon; altitude of balloon, 3,500 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	40,000	39,200	38,460	37,730	37,030	36,360	35,700	35,070	34,460	33,870
6	33,300	32,750	32,220	31,700	31,200	30,720	30,250	29,790	29,350	28,920
7	28,510	28,100	27,710	27,320	26,950	26,590	26,230	25,890	25,550	25,220
8	24,900	24,590	24,290	23,990	23,700	23,420	23,140	22,870	22,610	22,350
9	22,100	21,850	21,610	21,370	21,140	20,920	20,690	20,480	20,260	20,050
10	19,850	19,650	19,450	19,260	19,070	18,880	18,700	18,520	18,350	18,180
11	18,010	17,840	17,680	17,520	17,360	17,200	17,050	16,900	16,750	16,610
12	16,470	16,330	16,190	16,050	15,920	15,790	15,660	15,530	15,410	15,280
13	15,160	15,040	14,920	14,810	14,690	14,580	14,470	14,360	14,250	14,140
14	14,040	13,930	13,830	13,730	13,630	13,530	13,440	13,340	13,250	13,150
15	13,060	12,970	12,880	12,790	12,710	12,620	12,540	12,450	12,370	12,290
16	12,210	12,130	12,050	11,970	11,890	11,820	11,740	11,670	11,590	11,520
17	11,450	11,380	11,310	11,240	11,170	11,100	11,030	10,970	10,900	10,840
18	10,770	10,710	10,650	10,580	10,520	10,460	10,400	10,340	10,280	10,220
19	10,160	10,110	10,050	9,990	9,940	9,880	9,830	9,780	9,720	9,670
20	9,620	9,560	9,510	9,460	9,410	9,360	9,310	9,260	9,210	9,170
21	9,120	9,070	9,020	8,980	8,930	8,890	8,840	8,800	8,750	8,710
22	8,660	8,620	8,580	8,530	8,490	8,450	8,410	8,370	8,330	8,290
23	8,250	8,210	8,170	8,130	8,090	8,050	8,010	7,970	7,940	7,900
24	7,860	7,820	7,790	7,750	7,720	7,680	7,640	7,610	7,570	7,540
25	7,510	7,470	7,440	7,400	7,370	7,340	7,310	7,270	7,240	7,210
26	7,180	7,140	7,110	7,080	7,050	7,020	6,990	6,960	6,930	6,900
27	6,870	6,840	6,810	6,780	6,750	6,720	6,690	6,670	6,640	6,610
28	6,580	6,550	6,530	6,500	6,470	6,450	6,420	6,390	6,370	6,340
29	6,310	6,290	6,260	6,240	6,210	6,190	6,160	6,140	6,110	6,090
30	6,060	6,040	6,010	5,990	5,970	5,940	5,920	5,890	5,870	5,850
31	5,830	5,800	5,780	5,760	5,730	5,710	5,690	5,670	5,640	5,620
32	5,600	5,580	5,560	5,540	5,510	5,490	5,470	5,450	5,430	5,410
33	5,390	5,370	5,350	5,330	5,310	5,290	5,270	5,250	5,230	5,210
34	5,190	5,170	5,150	5,130	5,110	5,090	5,070	5,050	5,040	5,020
35	5,000	4,980	4,960	4,940	4,920	4,910	4,890	4,870	4,850	4,830
36	4,820	4,800	4,780	4,760	4,750	4,730	4,710	4,700	4,680	4,660
37	4,640	4,630	4,610	4,590	4,580	4,560	4,540	4,530	4,510	4,500
38	4,480	4,460	4,450	4,430	4,420	4,400	4,380	4,370	4,350	4,340
39	4,320	4,310	4,290	4,280	4,260	4,250	4,230	4,220	4,200	4,190
40	4,170	4,160	4,140	4,130	4,110	4,100	4,080	4,070	4,050	4,040
41	4,030	4,010	4,000	3,980	3,970	3,960	3,940	3,930	3,910	3,900
42	3,890	3,870	3,860	3,850	3,830	3,820	3,810	3,790	3,780	3,770
43	3,750	3,740	3,730	3,710	3,700	3,690	3,680	3,660	3,650	3,640
44	3,620	3,610	3,600	3,590	3,570	3,560	3,550	3,540	3,520	3,510
45	3,500	3,490	3,480	3,460	3,450	3,440	3,430	3,420	3,400	3,390
46	3,380	3,370	3,360	3,340	3,330	3,320	3,310	3,300	3,290	3,280
47	3,260	3,250	3,240	3,230	3,220	3,210	3,200	3,180	3,170	3,160

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

17 minutes after release of balloon; altitude of balloon, 3,500 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	3,150	3,140	3,130	3,120	3,110	3,100	3,090	3,070	3,060	3,050
49	3,040	3,030	3,020	3,010	3,000	2,990	2,980	2,970	2,960	2,950
50	2,940	2,930	2,920	2,910	2,900	2,890	2,870	2,860	2,850	2,840
51	2,830	2,820	2,810	2,800	2,790	2,780	2,770	2,760	2,750	2,740
52	2,730	2,720	2,710	2,710	2,700	2,690	2,680	2,670	2,660	2,650
53	2,640	2,630	2,620	2,610	2,600	2,590	2,580	2,570	2,560	2,550
54	2,540	2,530	2,520	2,520	2,510	2,500	2. 490	2,480	2,470	2,460
55	2,450	2,440	2,430	2,420	2,410	2,410	2,400	2,390	2,380	2,370
56	2,360	2,350	2,340	2,330	2,330	2,320	2,310	2,300	2,290	2,280
57	2,270	2,260	2,260	2,250	2,240	2,230	2,220	2,210	2,200	2,200
58	2,190	2,180	2,170	2,160	2,150	2,140	2,140	2,130	2,120	2,110
59	2,100	2,090	2,090	2,080	2,070	2,060	2,050	2,050	2,040	2,030
60	2,020	2,010	2,000	2,000	1,990	1,980	1,970	1,960	1,960	1,950
61	1,940	1,930	1,920	1,920	1,910	1,900	1,890	1,880	1,880	1,870
62	1,860	1,850	1,850	1,840	1,830	1,820	1,810	1,810	1,800	1,790
63	1,780	1,780	1,770	1,760	1,750	1,750	1,740	1,730	1,720	1,710
64	1,710	1,700	1,690	1,680	1,680	1,670	1,660	1,650	1,650	1,640
65	1,630	1,620	1,620	1,610	1,600	1,590	1,590	1,580	1,570	1,570
66	1,560	1,550	1,540	1,540	1,530	1,520	1,510	1,510	1,500	1,490
67	1,490	1,480	1,470	1,460	1,460	1,450	1,440	1,440	1,430	1,420
68	1,410	1,410	1,400	1,390	1,390	1,380	1,370	1,360	1,360	1,350
69	1,340	1,340	1,330	1,320	1,320	1,310	1,300	1,290	1,290	1,280
70	1,270	1,270	1,260	1,250	1,250	1,240	1,230	1,230	1,220	1,210
71	1,210	1,200	1,190	1,180	1,180	1,170	1,160	1,160	1,150	1,140
72	1,140	1,130	1,120	1,120	1,110	1,100	1,100	1,090	1,080	1,080
73	1,070	1,060	1,060	1,050	1,040	1,040	1,030	1,020	1,020	1,010
74	1,000	1,000	990	980	980	970	960	960	950	940
75	940	930	920	920	910	910	900	890	890	880
76	870	870	860	850	850	840	830	830	820	810
77	810	800	800	790	780	780	770	760	760	750
78	740	740	730	720	720	710	710	700	690	690
79	680	670	670	660	650	650	640	640	630	620
80	620	610	600	600	590	590	580	570	570	560
81	550	550	540	540	530	520	520	510	500	500
82	490	490	480	470	470	460	450	450	440	440
83	430	420	420	410	400	400	390	390	380	370
84	370	360	360	350	340	340	330	320	320	310
85	310	300	290	290	280	280	270	260	260	250
86	240	240	230	230	220	210	210	200	200	190
87	180	180	170	170	160	150	150	140	130	130
88	120	120	110	100	100	90	90	80	70	70
89	60	50	50	40	40	30	20	20	10	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

18 minutes after release of balloon; altitude of balloon, 3,700 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	42, 290	41, 440	40, 660	39, 890	39, 150	38, 440	37, 740	37, 070	36, 430	35, 800
6	35, 200	34, 620	34, 060	33, 510	32, 990	32, 470	31, 980	31, 500	31, 030	30, 580
7	30, 130	29, 710	29, 290	28, 880	28, 490	28, 100	27, 730	27, 370	27, 010	26, 660
8	26, 330	26, 000	25, 680	25, 360	25, 060	24, 760	24, 470	24, 180	23, 900	23, 630
9	23, 360	23, 100	22, 840	22, 590	22, 350	22, 110	21, 880	21, 650	21, 420	21, 200
10	20, 980	20, 770	20, 560	20, 360	20, 160	19, 960	19, 770	19, 580	19, 400	19, 210
11	19, 040	18, 860	18, 690	18, 520	18, 350	18, 190	18, 020	17, 870	17, 710	17, 560
12	17, 410	17, 260	17, 110	16, 970	16, 830	16, 690	16, 550	16, 420	16, 290	16, 150
13	16, 030	15, 900	15, 770	15, 650	15, 530	15, 410	15, 290	15, 180	15, 060	14, 950
14	14, 840	14, 730	14, 620	14, 520	14, 410	14, 310	14, 200	14, 100	14, 000	13, 910
15	13, 810	13, 710	13, 620	13, 520	13, 430	13, 340	13, 250	13, 160	13, 080	12, 990
16	12, 900	12, 820	12, 740	12, 650	12, 570	12, 490	12, 410	12, 330	12, 260	12, 180
17	12, 100	12, 030	11, 950	11, 880	11, 810	11, 730	11, 660	11, 590	11, 520	11, 460
18	11, 390	11, 320	11, 250	11, 190	11, 120	11, 060	10, 990	10, 930	10, 870	10, 810
19	10, 750	10, 680	10, 620	10, 570	10, 510	10, 450	10, 390	10, 330	10, 280	10, 220
20	10, 170	10, 110	10, 060	10, 000	9, 950	9, 900	9, 840	9, 790	9, 740	9, 690
21	9, 640	9, 590	9, 540	9, 490	9, 440	9, 390	9, 350	9, 300	9, 250	9, 200
22	9, 160	9, 110	9, 070	9, 020	8, 980	8, 930	8, 890	8, 850	8, 800	8, 760
23	8, 720	8, 670	8, 630	8, 590	8, 550	8, 510	8, 470	8, 430	8, 390	8, 350
24	8, 310	8, 270	8, 230	8, 190	8, 160	8, 120	8, 080	8, 040	8, 010	7, 970
25	7, 930	7, 900	7, 860	7, 830	7, 790	7, 760	7, 720	7, 690	7, 650	7, 620
26	7, 590	7, 550	7, 520	7, 490	7, 450	7, 420	7, 390	7, 360	7, 320	7, 290
27	7, 260	7, 230	7, 200	7, 170	7, 140	7, 110	7, 080	7, 050	7, 020	6, 990
28	6, 960	6, 930	6, 900	6, 870	6, 840	6, 810	6, 790	6, 760	6, 730	6, 700
29	6, 670	6, 650	6, 620	6, 590	6, 570	6, 540	6, 510	6, 490	6, 460	6, 430
30	6, 410	6, 380	6, 360	6, 330	6, 310	6, 280	6, 260	6, 230	6, 210	6, 180
31	6, 160	6, 130	6, 110	6, 090	6, 060	6, 040	6, 010	5, 990	5, 970	5, 940
32	5, 920	5, 900	5, 880	5, 850	5, 830	5, 810	5, 790	5, 760	5, 740	5, 720
33	5, 700	5, 680	5, 650	5, 630	5, 610	5, 590	5, 570	5, 550	5, 530	5, 510
34	5, 490	5, 460	5, 440	5, 420	5, 400	5, 380	5, 360	5, 340	5, 320	5, 300
35	5, 280	5, 260	5, 250	5, 230	5, 210	5, 190	5, 170	5, 150	5, 130	5, 110
36	5, 090	5, 070	5, 060	5, 040	5, 020	5, 000	4, 980	4, 960	4, 950	4, 930
37	4, 910	4, 890	4, 870	4, 860	4, 840	4, 820	4, 800	4, 790	4, 770	4, 750
38	4, 740	4, 720	4, 700	4, 680	4, 670	4, 650	4, 630	4, 620	4, 600	4, 590
39	4, 570	4, 550	4, 540	4, 520	4, 500	4, 490	4, 470	4, 460	4, 440	4, 430
40	4, 410	4, 390	4, 380	4, 360	4, 350	4, 330	4, 320	4, 300	4, 290	4, 270
41	4, 260	4, 240	4, 230	4, 210	4, 200	4, 180	4, 170	4, 150	4, 140	4, 120
42	4, 110	4, 090	4, 080	4, 070	4, 050	4, 040	4, 020	4, 010	4, 000	3, 980
43	3, 970	3, 950	3, 940	3, 930	3, 910	3, 900	3, 890	3, 870	3, 860	3, 850
44	3, 830	3, 820	3, 800	3, 790	3, 780	3, 770	3, 750	3, 740	3, 730	3, 710
45	3, 700	3, 690	3, 670	3, 660	3, 650	3, 640	3, 620	3, 610	3, 600	3, 590
46	3, 570	3, 560	3, 550	3, 540	3, 520	3, 510	3, 500	3, 490	3, 470	3, 460
47	3, 450	3, 440	3, 430	3, 410	3, 400	3, 390	3, 380	3, 370	3, 350	3, 340

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

18 minutes after release of balloon; altitude of balloon, 3,700 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	3, 330	3, 320	3, 310	3, 300	3, 280	3, 270	3, 260	3, 250	3, 240	3, 230
49	3, 220	3, 200	3, 190	3, 180	3, 170	3, 160	3, 150	3, 140	3, 130	3, 120
50	3, 100	3, 090	3, 080	3, 070	3, 060	3, 050	3, 040	3, 030	3, 020	3, 010
51	3, 000	2, 990	2, 970	2, 960	2, 950	2, 940	2, 930	2, 920	2, 910	2, 900
52	2, 890	2, 880	2, 870	2, 860	2, 850	2, 840	2, 830	2, 820	2, 810	2, 800
53	2, 790	2, 780	2, 770	2, 760	2, 750	2, 740	2, 730	2, 720	2, 710	2, 700
54	2, 690	2, 680	2, 670	2, 660	2, 650	2, 640	2, 630	2, 620	2, 610	2, 600
55	2, 590	2, 580	2, 570	2, 560	2, 550	2, 540	2, 530	2, 520	2, 510	2, 510
56	2, 500	2, 490	2, 480	2, 470	2, 460	2, 450	2, 440	2, 430	2, 420	2, 410
57	2, 400	2, 390	2, 380	2, 380	2, 370	2, 360	2, 350	2, 340	2, 330	2, 320
58	2, 310	2, 300	2, 290	2, 290	2, 280	2, 270	2, 260	2, 250	2, 240	2, 230
59	2, 220	2, 210	2, 210	2, 200	2, 190	2, 180	2, 170	2, 160	2, 150	2, 140
60	2, 140	2, 130	2, 120	2, 110	2, 100	2, 090	2, 080	2, 080	2, 070	2, 060
61	2, 050	2, 040	2, 030	2, 030	2, 020	2, 010	2, 000	1, 990	1, 980	1, 980
62	1, 970	1, 960	1, 950	1, 940	1, 930	1, 930	1, 920	1, 910	1, 900	1, 890
63	1, 890	1, 880	1, 870	1, 860	1, 850	1, 840	1, 840	1, 830	1, 820	1, 810
64	1, 800	1, 800	1, 790	1, 780	1, 770	1, 760	1, 760	1, 750	1, 740	1, 730
65	1, 730	1, 720	1, 710	1, 700	1, 690	1, 690	1, 680	1, 670	1, 660	1, 660
66	1, 650	1, 640	1, 630	1, 620	1, 620	1, 610	1, 600	1, 590	1, 590	1, 580
67	1, 570	1, 560	1, 560	1, 550	1, 540	1, 530	1, 530	1, 520	1, 510	1, 500
68	1, 490	1, 490	1, 480	1, 470	1, 460	1, 460	1, 450	1, 440	1, 440	1, 430
69	1, 420	1, 410	1, 410	1, 400	1, 390	1, 380	1, 380	1, 370	1, 360	1, 350
70	1, 350	1, 340	1, 330	1, 320	1, 320	1, 310	1, 300	1, 300	1, 290	1, 280
71	1, 270	1, 270	1, 260	1, 250	1, 250	1, 240	1, 230	1, 220	1, 220	1, 210
72	1, 200	1, 200	1, 190	1, 180	1, 170	1, 170	1, 160	1, 150	1, 150	1, 140
73	1, 130	1, 120	1, 120	1, 110	1, 100	1, 100	1, 090	1, 080	1, 070	1, 070
74	1, 060	1, 050	1, 050	1, 040	1, 030	1, 030	1, 020	1, 010	1, 010	1, 000
75	990	980	980	970	960	960	950	940	940	930
76	920	920	910	900	900	890	880	870	870	860
77	850	850	840	830	830	820	810	810	800	790
78	790	780	770	770	760	750	750	740	730	730
79	720	710	710	700	690	690	680	670	670	660
80	650	650	640	630	630	620	610	610	600	590
81	590	580	570	570	560	550	550	540	530	530
82	520	510	510	500	490	490	480	470	470	460
83	450	450	440	430	430	420	420	410	400	400
84	390	380	380	370	360	360	350	340	340	330
85	320	320	310	300	300	290	280	280	270	270
86	260	250	250	240	230	230	220	210	210	200
87	190	190	180	170	170	160	160	150	140	140
88	130	120	120	110	100	100	90	80	80	70
89	60	60	50	50	40	30	30	20	10	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

19 minutes after release of balloon; altitude of balloon, 3,900 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	44, 580	43, 680	42, 860	42, 040	41, 260	40, 520	39, 780	39, 080	38, 400	37, 740
6	37, 110	36, 490	35, 900	35, 330	34, 770	34, 230	33, 710	33, 200	32, 710	32, 230
7	31, 760	31, 310	30, 870	30, 440	30, 030	29, 620	29, 230	28, 850	28, 470	28, 110
8	27, 750	27, 400	27, 060	26, 730	26, 410	26, 100	25, 790	25, 490	25, 190	24, 910
9	24, 620	24, 350	24, 080	23, 820	23, 560	23, 310	23, 060	22, 820	22, 580	22, 350
10	22, 120	21, 890	21, 680	21, 460	21, 250	21, 040	20, 840	20, 640	20, 440	20, 250
11	20, 060	19, 880	19, 700	19, 520	19, 340	19, 170	19, 000	18, 830	18, 670	18, 510
12	18, 350	18, 190	18, 040	17, 890	17, 740	17, 590	17, 450	17, 310	17, 170	17, 030
13	16, 890	16, 760	16, 630	16, 500	16, 370	16, 240	16, 120	16, 000	15, 880	15, 760
14	15, 640	15, 530	15, 410	15, 300	15, 190	15, 080	14, 970	14, 870	14, 760	14, 660
15	14, 560	14, 450	14, 350	14, 260	14, 160	14, 060	13, 970	13, 870	13, 780	13, 690
16	13, 600	13, 510	13, 420	13, 340	13, 250	13, 170	13, 080	13, 000	12, 920	12, 840
17	12, 760	12, 680	12, 600	12, 520	12, 440	12, 370	12, 290	12, 220	12, 150	12, 070
18	12, 000	11, 930	11, 860	11, 790	11, 720	11, 660	11, 590	11, 520	11, 460	11, 390
19	11, 330	11, 260	11, 200	11, 140	11, 070	11, 010	10, 950	10, 890	10, 830	10, 770
20	10, 720	10, 660	10, 600	10, 540	10, 490	10, 430	10, 380	10, 320	10, 270	10, 210
21	10, 160	10, 110	10, 050	10, 000	9, 950	9, 900	9, 850	9, 800	9, 750	9, 700
22	9, 650	9, 600	9, 560	9, 510	9, 460	9, 420	9, 370	9, 320	9, 280	9, 230
23	9, 190	9, 140	9, 100	9, 060	9, 010	8, 970	8, 930	8, 880	8, 840	8, 800
24	8, 760	8, 720	8, 680	8, 640	8, 600	8, 560	8, 520	8, 480	8, 440	8, 400
25	8, 360	8, 330	8, 290	8, 250	8, 210	8, 180	8, 140	8, 100	8, 070	8, 030
26	8, 000	7, 960	7, 930	7, 890	7, 860	7, 820	7, 790	7, 750	7, 720	7, 690
27	7, 650	7, 620	7, 590	7, 560	7, 520	7, 490	7, 460	7, 430	7, 400	7, 370
28	7, 330	7, 300	7, 270	7, 240	7, 210	7, 180	7, 150	7, 120	7, 090	7, 060
29	7, 040	7, 010	6, 980	6, 950	6, 920	6, 890	6, 870	6, 840	6, 810	6, 780
30	6, 760	6, 730	6, 700	6, 670	6, 650	6, 620	6, 590	6, 570	6, 540	6, 520
31	6, 490	6, 470	6, 440	6, 410	6, 390	6, 360	6, 340	6, 310	6, 290	6, 270
32	6, 240	6, 220	6, 190	6, 170	6, 150	6, 120	6, 100	6, 080	6, 050	6, 030
33	6, 010	5, 980	5, 960	5, 940	5, 910	5, 890	5, 870	5, 850	5, 830	5, 800
34	5, 780	5, 760	5, 740	5, 720	5, 700	5, 670	5, 650	5, 630	5, 610	5, 590
35	5, 570	5, 550	5, 530	5, 510	5, 490	5, 470	5, 450	5, 430	5, 410	5, 390
36	5, 370	5, 350	5, 330	5, 310	5, 290	5, 270	5, 250	5, 230	5, 210	5, 190
37	5, 180	5, 160	5, 140	5, 120	5, 100	5, 080	5, 060	5, 050	5, 030	5, 010
38	4, 990	4, 970	4, 960	4, 940	4, 920	4, 900	4, 890	4, 870	4, 850	4, 830
39	4, 820	4, 800	4, 780	4, 770	4, 750	4, 730	4, 710	4, 700	4, 680	4, 660
40	4, 650	4, 630	4, 610	4, 600	4, 580	4, 570	4, 550	4, 530	4, 520	4, 500
41	4, 490	4, 470	4, 450	4, 440	4, 420	4, 410	4, 390	4, 380	4, 360	4, 350
42	4, 330	4, 320	4, 300	4, 290	4, 270	4, 260	4, 240	4, 230	4, 210	4, 200
43	4, 180	4, 170	4, 150	4, 140	4, 120	4, 110	4, 100	4, 080	4, 070	4, 050
44	4, 040	4, 020	4, 010	4, 000	3, 980	3, 970	3, 950	3, 940	3, 930	3, 910
45	3, 900	3, 890	3, 870	3, 860	3, 850	3, 830	3, 820	3, 810	3, 790	3, 780
46	3, 770	3, 750	3, 740	3, 730	3, 710	3, 700	3, 690	3, 680	3, 660	3, 650
47	3, 640	3, 620	3, 610	3, 600	3, 590	3, 570	3, 560	3, 550	3, 540	3, 520

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

19 minutes after release of balloon; altitude of balloon, 3,900 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	3, 510	3, 500	3, 490	3, 470	3, 460	3, 450	3, 440	3, 430	3, 410	3, 400
49	3, 390	3, 380	3, 370	3, 350	3, 340	3, 330	3, 320	3, 310	3, 300	3, 280
50	3, 270	3, 260	3, 250	3, 240	3, 230	3, 210	3, 200	3, 190	3, 180	3, 170
51	3, 160	3, 150	3, 140	3, 120	3, 110	3, 100	3, 090	3, 080	3, 070	3, 060
52	3, 050	3, 040	3, 030	3, 010	3, 000	2, 990	2, 980	2, 970	2, 960	2, 950
53	2, 940	2, 930	2, 920	2, 910	2, 900	2, 890	2, 880	2, 860	2, 850	2, 840
54	2, 830	2, 820	2, 810	2, 800	2, 790	2, 780	2, 770	2, 760	2, 750	2, 740
55	2, 730	2, 720	2, 710	2, 700	2, 690	2, 680	2, 670	2, 660	2, 650	2, 640
56	2, 630	2, 620	2, 610	2, 600	2, 590	2, 580	2, 570	2, 560	2, 550	2, 540
57	2, 530	2, 520	2, 510	2, 500	2, 490	2, 480	2, 470	2, 470	2, 460	2, 450
58	2, 440	2, 430	2, 420	2, 410	2, 400	2, 390	2, 380	2, 370	2, 360	2, 350
59	2, 340	2, 330	2, 320	2, 320	2, 310	2, 300	2, 290	2, 280	2, 270	2, 260
60	2, 250	2, 240	2, 230	2, 220	2, 220	2, 210	2, 200	2, 190	2, 180	2, 170
61	2, 160	2, 150	2, 140	2, 140	2, 130	2, 120	2, 110	2, 100	2, 090	2, 080
62	2, 070	2, 070	2, 060	2, 050	2, 040	2, 030	2, 020	2, 010	2, 000	2, 000
63	1, 990	1, 980	1, 970	1, 960	1, 950	1, 940	1, 940	1, 930	1, 920	1, 910
64	1, 900	1, 890	1, 890	1, 880	1, 870	1, 860	1, 850	1, 840	1, 840	1, 830
65	1, 820	1, 810	1, 800	1, 790	1, 790	1, 780	1, 770	1, 760	1, 750	1, 740
66	1, 740	1, 730	1, 720	1, 710	1, 700	1, 700	1, 690	1, 680	1, 670	1, 660
67	1, 660	1, 650	1, 640	1, 630	1, 620	1, 620	1, 610	1, 600	1, 590	1, 580
68	1, 580	1, 570	1, 560	1, 550	1, 540	1, 540	1, 530	1, 520	1, 510	1, 510
69	1, 500	1, 490	1, 480	1, 470	1, 470	1, 460	1, 450	1, 440	1, 430	1, 430
70	1, 420	1, 410	1, 400	1, 400	1, 390	1, 380	1, 370	1, 370	1, 360	1, 350
71	1, 340	1, 340	1, 330	1, 320	1, 310	1, 300	1, 300	1, 290	1, 280	1, 270
72	1, 270	1, 260	1, 250	1, 240	1, 240	1, 230	1, 220	1, 210	1, 210	1, 200
73	1, 190	1, 180	1, 180	1, 170	1, 160	1, 160	1, 150	1, 140	1, 130	1, 130
74	1, 120	1, 110	1, 100	1, 100	1, 090	1, 080	1, 070	1, 070	1, 060	1, 050
75	1, 040	1, 040	1, 030	1, 020	1, 020	1, 010	1, 000	990	990	980
76	970	970	960	950	940	940	930	920	910	910
77	900	890	890	880	870	860	860	850	840	840
78	830	820	810	810	800	790	790	780	770	770
79	760	750	740	740	730	720	720	710	700	690
80	690	680	670	670	660	650	650	640	630	620
81	620	610	600	600	590	580	580	570	560	550
82	550	540	530	530	520	510	510	500	490	490
83	480	470	460	460	450	440	440	430	420	420
84	410	400	400	390	380	380	370	360	350	350
85	340	330	330	320	310	310	300	290	290	280
86	270	270	260	250	250	240	230	230	220	210
87	200	200	190	180	180	170	160	160	150	140
88	140	130	120	120	110	100	100	90	80	70
89	70	60	50	50	40	30	30	20	10	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

20 minutes after release of balloon; altitude of balloon, 4,100 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	46, 860	45, 920	45, 060	44, 200	43, 380	42, 600	41, 820	41, 080	40, 360	39, 680
6	39, 010	38, 360	37, 740	37, 140	36, 550	35, 990	35, 440	34, 900	34, 380	33, 880
7	33, 390	32, 920	32, 450	32, 010	31, 570	31, 140	30, 730	30, 320	29, 930	29, 550
8	29, 170	28, 810	28, 450	28, 100	27, 770	27, 430	27, 110	26, 790	26, 480	26, 180
9	25, 890	25, 600	25, 310	25, 040	24, 770	24, 500	24, 240	23, 990	23, 740	23, 490
10	23, 250	23, 020	22, 790	22, 560	22, 340	22, 120	21, 910	21, 700	21, 490	21, 290
11	21, 090	20, 900	20, 710	20, 520	20, 330	20, 150	19, 970	19, 800	19, 630	19, 460
12	19, 290	19, 120	18, 960	18, 800	18, 650	18, 490	18, 340	18, 190	18, 050	17, 900
13	17, 760	17, 620	17, 480	17, 340	17, 210	17, 080	16, 950	16, 820	16, 690	16, 570
14	16, 440	16, 320	16, 200	16, 090	15, 970	15, 850	15, 740	15, 630	15, 520	15, 410
15	15, 300	15, 200	15, 090	14, 990	14, 890	14, 780	14, 680	14, 590	14, 490	14, 390
16	14, 300	14, 200	14, 110	14, 020	13, 930	13, 840	13, 750	13, 670	13, 580	13, 490
17	13, 410	13, 330	13, 250	13, 160	13, 080	13, 000	12, 920	12, 850	12, 770	12, 690
18	12, 620	12, 540	12, 470	12, 400	12, 330	12, 250	12, 180	12, 110	12, 040	11, 980
19	11, 910	11, 840	11, 770	11, 710	11, 640	11, 580	11, 510	11, 450	11, 390	11, 330
20	11, 260	11, 200	11, 140	11, 080	11, 020	10, 970	10, 910	10, 850	10, 790	10, 740
21	10, 680	10, 630	10, 570	10, 520	10, 460	10, 410	10, 360	10, 300	10, 250	10, 200
22	10, 150	10, 100	10, 050	10, 000	9, 950	9, 900	9, 850	9, 800	9, 750	9, 710
23	9, 660	9, 610	9, 570	9, 520	9, 470	9, 430	9, 380	9, 340	9, 300	9, 250
24	9, 210	9, 170	9, 120	9, 080	9, 040	9, 000	8, 960	8, 910	8, 870	8, 830
25	8, 790	8, 750	8, 710	8, 670	8, 630	8, 600	8, 560	8, 520	8, 480	8, 440
26	8, 410	8, 370	8, 330	8, 300	8, 260	8, 220	8, 190	8, 150	8, 120	8, 080
27	8, 050	8, 010	7, 980	7, 940	7, 910	7, 880	7, 840	7, 810	7, 780	7, 740
28	7, 710	7, 680	7, 650	7, 610	7, 580	7, 550	7, 520	7, 490	7, 460	7, 430
29	7, 400	7, 370	7, 340	7, 310	7, 280	7, 250	7, 220	7, 190	7, 160	7, 130
30	7, 100	7, 070	7, 040	7, 020	6, 990	6, 960	6, 930	6, 910	6, 880	6, 850
31	6, 820	6, 800	6, 770	6, 740	6, 720	6, 690	6, 660	6, 640	6, 610	6, 590
32	6, 560	6, 540	6, 510	6, 490	6, 460	6, 440	6, 410	6, 390	6, 360	6, 340
33	6, 310	6, 290	6, 270	6, 240	6, 220	6, 190	6, 170	6, 150	6, 120	6, 100
34	6, 080	6, 060	6, 030	6, 010	5, 990	5, 970	5, 940	5, 920	5, 900	5, 880
35	5, 860	5, 830	5, 810	5, 790	5, 770	5, 750	5, 730	5, 710	5, 680	5, 660
36	5, 640	5, 620	5, 600	5, 580	5, 560	5, 540	5, 520	5, 500	5, 480	5, 460
37	5, 440	5, 420	5, 400	5, 380	5, 360	5, 340	5, 320	5, 300	5, 290	5, 270
38	5, 250	5, 230	5, 210	5, 190	5, 170	5, 150	5, 140	5, 120	5, 100	5, 080
39	5, 060	5, 050	5, 030	5, 010	4, 990	4, 970	4, 960	4, 940	4, 920	4, 900
40	4, 890	4, 870	4, 850	4, 830	4, 820	4, 800	4, 780	4, 770	4, 750	4, 730
41	4, 720	4, 700	4, 680	4, 670	4, 650	4, 630	4, 620	4, 600	4, 590	4, 570
42	4, 550	4, 540	4, 520	4, 510	4, 490	4, 470	4, 460	4, 440	4, 430	4, 410
43	4, 400	4, 380	4, 370	4, 350	4, 340	4, 320	4, 310	4, 290	4, 280	4, 260
44	4, 250	4, 230	4, 220	4, 200	4, 190	4, 170	4, 160	4, 140	4, 130	4, 110
45	4, 100	4, 090	4, 070	4, 060	4, 040	4, 030	4, 020	4, 000	3, 990	3, 970
46	3, 960	3, 950	3, 930	3, 920	3, 900	3, 890	3, 880	3, 860	3, 850	3, 840
47	3, 820	3, 810	3, 800	3, 780	3, 770	3, 760	3, 740	3, 730	3, 720	3, 700

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

20 minutes after release of balloon: altitude of balloon, 4,100 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	3,690	3,680	3,670	3,650	3,640	3,630	3,610	3,600	3,590	3,580
49	3,560	3,550	3,540	3,530	3,510	3,500	3,490	3,480	3,460	3,450
50	3,440	3,430	3,420	3,400	3,390	3,380	3,370	3,360	3,340	3,330
51	3,320	3,310	3,300	3,280	3,270	3,260	3,250	3,240	3,230	3,210
52	3,200	3,190	3,180	3,170	3,160	3,150	3,130	3,120	3,110	3,100
53	3,090	3,080	3,070	3,060	3,050	3,030	3,020	3,010	3,000	2,990
54	2,980	2,970	2,960	2,950	2,940	2,920	2,910	2,900	2,890	2,880
55	2,870	2,860	2,850	2,840	2,830	2,820	2,810	2,800	2,790	2,780
56	2,770	2,760	2,740	2,730	2,720	2,710	2,700	2,690	2,680	2,670
57	2,660	2,650	2,640	2,630	2,620	2,610	2,600	2,590	2,580	2,570
58	2,560	2,550	2,540	2,530	2,520	2,510	2,500	2,490	2,480	2,470
59	2,460	2,450	2,440	2,430	2,420	2,410	2,410	2,400	2,390	2,380
60	2,370	2,360	2,350	2,340	2,330	2,320	2,310	2,300	2,290	2,280
61	2,270	2,260	2,250	2,240	2,240	2,230	2,220	2,210	2,200	2,190
62	2,180	2,170	2,160	2,150	2,140	2,130	2,130	2,120	2,110	2,100
63	2,090	2,080	2,070	2,060	2,050	2,040	2,040	2,030	2,020	2,010
64	2,000	1,990	1,980	1,970	1,960	1,960	1,950	1,940	1,930	1,920
65	1,910	1,900	1,890	1,890	1,880	1,870	1,860	1,850	1,840	1,830
66	1,830	1,820	1,810	1,800	1,790	1,780	1,770	1,770	1,760	1,750
67	1,740	1,730	1,720	1,720	1,710	1,700	1,690	1,680	1,670	1,670
68	1,660	1,650	1,640	1,630	1,620	1,610	1,610	1,600	1,590	1,580
69	1,570	1,570	1,560	1,550	1,540	1,530	1,520	1,520	1,510	1,500
70	1,490	1,480	1,480	1,470	1,460	1,450	1,440	1,440	1,430	1,420
71	1,410	1,400	1,400	1,390	1,380	1,370	1,360	1,360	1,350	1,340
72	1,330	1,320	1,320	1,310	1,300	1,290	1,280	1,280	1,270	1,260
73	1,250	1,250	1,240	1,230	1,220	1,210	1,210	1,200	1,190	1,180
74	1,180	1,170	1,160	1,150	1,140	1,140	1,130	1,120	1,110	1,110
75	1,100	1,090	1,080	1,080	1,070	1,060	1,050	1,050	1,040	1,030
76	1,020	1,010	1,010	1,000	990	980	980	970	960	950
77	950	940	930	920	920	910	900	890	890	880
78	870	860	860	850	840	830	830	820	810	800
79	800	790	780	770	770	760	750	740	740	730
80	720	720	710	700	690	690	680	670	660	660
81	650	640	630	630	620	610	610	600	590	580
82	580	570	560	550	550	540	530	530	520	510
83	500	500	490	480	470	470	460	450	450	440
84	430	420	420	410	400	390	390	380	370	370
85	360	350	340	340	330	320	320	310	300	290
86	290	280	270	270	260	250	240	240	230	220
87	210	210	200	190	190	180	170	160	160	150
88	140	140	130	120	110	110	100	90	90	80
89	70	60	60	50	40	40	30	20	10	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

21 minutes after release of balloon; altitude of balloon, 4,300 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	49, 150	48, 160	47, 260	46, 350	45, 490	44, 680	43, 860	43, 090	42, 330	41, 610
6	40, 910	40, 240	39, 580	38, 950	38, 340	37, 740	37, 160	36, 600	36, 060	35, 530
7	35, 020	34, 520	34, 040	33, 570	33, 110	32, 660	32, 230	31, 800	31, 390	30, 990
8	30, 600	30, 210	29, 840	29, 480	29, 120	28, 770	28, 430	28, 100	27, 780	27, 460
9	27, 150	26, 850	26, 550	26, 260	25, 970	25, 700	25, 420	25, 160	24, 890	24, 640
10	24, 390	24, 140	23, 900	23, 660	23, 430	23, 200	22, 980	22, 760	22, 540	22, 330
11	22, 120	21, 920	21, 720	21, 520	21, 330	21, 140	20, 950	20, 760	20, 580	20, 400
12	20, 230	20, 060	19, 890	19, 720	19, 560	19, 400	19, 240	19, 080	18, 930	18, 770
13	18, 630	18, 480	18, 330	18, 190	18, 050	17, 910	17, 770	17, 640	17, 510	17, 380
14	17, 250	17, 120	16, 990	16, 870	16, 750	16, 630	16, 510	16, 390	16, 270	16, 160
15	16, 050	15, 940	15, 830	15, 720	15, 610	15, 510	15, 400	15, 300	15, 200	15, 100
16	15, 000	14, 900	14, 800	14, 700	14, 610	14, 520	14, 420	14, 330	14, 240	14, 150
17	14, 060	13, 980	13, 890	13, 810	13, 720	13, 640	13, 560	13, 470	13, 390	13, 310
18	13, 230	13, 160	13, 080	13, 000	12, 930	12, 850	12, 780	12, 700	12, 630	12, 560
19	12, 490	12, 420	12, 350	12, 280	12, 210	12, 140	12, 080	12, 010	11, 940	11, 880
20	11, 810	11, 750	11, 690	11, 620	11, 560	11, 500	11, 440	11, 380	11, 320	11, 260
21	11, 200	11, 140	11, 090	11, 030	10, 970	10, 920	10, 860	10, 810	10, 750	10, 700
22	10, 640	10, 590	10, 540	10, 480	10, 430	10, 380	10, 330	10, 280	10, 230	10, 180
23	10, 130	10, 080	10, 030	9, 980	9, 940	9, 890	9, 840	9, 800	9, 750	9, 700
24	9, 660	9, 610	9, 570	9, 520	9, 480	9, 440	9, 390	9, 350	9, 310	9, 260
25	9, 220	9, 180	9, 140	9, 100	9, 060	9, 010	8, 970	8, 930	8, 890	8, 860
26	8, 820	8, 780	8, 740	8, 700	8, 660	8, 620	8, 590	8, 550	8, 510	8, 480
27	8, 440	8, 400	8, 370	8, 330	8, 300	8, 260	8, 230	8, 190	8, 160	8, 120
28	8, 090	8, 050	8, 020	7, 990	7, 950	7, 920	7, 890	7, 850	7, 820	7, 790
29	7, 760	7, 730	7, 690	7, 660	7, 630	7, 600	7, 570	7, 540	7, 510	7, 480
30	7, 450	7, 420	7, 390	7, 360	7, 330	7, 300	7, 270	7, 240	7, 210	7, 180
31	7, 160	7, 130	7, 100	7, 070	7, 040	7, 020	6, 990	6, 960	6, 940	6, 910
32	6, 880	6, 850	6, 830	6, 800	6, 780	6, 750	6, 720	6, 700	6, 670	6, 650
33	6, 620	6, 600	6, 570	6, 550	6, 520	6, 500	6, 470	6, 450	6, 420	6, 400
34	6, 380	6, 350	6, 330	6, 300	6, 280	6, 260	6, 230	6, 210	6, 190	6, 160
35	6, 140	6, 120	6, 100	6, 070	6, 050	6, 030	6, 010	5, 980	5, 960	5, 940
36	5, 920	5, 900	5, 880	5, 850	5, 830	5, 810	5, 790	5, 770	5, 750	5, 730
37	5, 710	5, 690	5, 670	5, 640	5, 620	5, 600	5, 580	5, 560	5, 540	5, 520
38	5, 500	5, 480	5, 460	5, 440	5, 430	5, 410	5, 390	5, 370	5, 350	5, 330
39	5, 310	5, 290	5, 270	5, 250	5, 230	5, 220	5, 200	5, 180	5, 160	5, 140
40	5, 120	5, 110	5, 090	5, 070	5, 050	5, 030	5, 020	5, 000	4, 980	4, 960
41	4, 950	4, 930	4, 910	4, 890	4, 880	4, 860	4, 840	4, 830	4, 810	4, 790
42	4, 780	4, 760	4, 740	4, 730	4, 710	4, 690	4, 680	4, 660	4, 640	4, 630
43	4, 610	4, 590	4, 580	4, 560	4, 550	4, 530	4, 520	4, 500	4, 480	4, 470
44	4, 450	4, 440	4, 420	4, 410	4, 390	4, 380	4, 360	4, 350	4, 330	4, 320
45	4, 300	4, 280	4, 270	4, 260	4, 240	4, 230	4, 210	4, 200	4, 180	4, 170
46	4, 150	4, 140	4, 120	4, 110	4, 090	4, 080	4, 070	4, 050	4, 040	4, 020
47	4, 010	4, 000	3, 980	3, 970	3, 950	3, 940	3, 930	3, 910	3, 900	3, 890

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

21 minutes after release of balloon; altitude of balloon, 4,300 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	3,870	3,860	3,840	3,830	3,820	3,800	3,790	3,780	3,760	3,750
49	3,740	3,720	3,710	3,700	3,690	3,670	3,660	3,650	3,630	3,620
50	3,610	3,600	3,580	3,570	3,560	3,540	3,530	3,520	3,510	3,490
51	3,480	3,470	3,460	3,450	3,430	3,420	3,410	3,400	3,380	3,370
52	3,360	3,350	3,340	3,320	3,310	3,300	3,290	3,280	3,260	3,250
53	3,240	3,230	3,220	3,210	3,190	3,180	3,170	3,160	3,150	3,140
54	3,120	3,110	3,100	3,090	3,080	3,070	3,060	3,040	3,030	3,020
55	3,010	3,000	2,990	2,980	2,970	2,960	2,940	2,930	2,920	2,910
56	2,900	2,890	2,880	2,870	2,860	2,850	2,840	2,820	2,810	2,800
57	2,790	2,780	2,770	2,760	2,750	2,740	2,730	2,720	2,710	2,700
58	2,690	2,680	2,670	2,660	2,650	2,640	2,620	2,610	2,600	2,590
59	2,580	2,570	2,560	2,550	2,540	2,530	2,520	2,510	2,500	2,490
60	2,480	2,470	2,460	2,450	2,440	2,430	2,420	2,410	2,400	2,390
61	2,380	2,370	2,360	2,350	2,340	2,330	2,330	2,320	2,310	2,300
62	2,290	2,280	2,270	2,260	2,250	2,240	2,230	2,220	2,210	2,200
63	2,190	2,180	2,170	2,160	2,150	2,140	2,130	2,130	2,120	2,110
64	2,100	2,090	2,080	2,070	2,060	2,050	2,040	2,030	2,020	2,010
65	2,010	2,000	1,990	1,980	1,970	1,960	1,950	1,940	1,930	1,920
66	1,910	1,910	1,900	1,890	1,880	1,870	1,860	1,850	1,840	1,830
67	1,830	1,820	1,810	1,800	1,790	1,780	1,770	1,760	1,750	1,750
68	1,740	1,730	1,720	1,710	1,700	1,690	1,690	1,680	1,670	1,660
69	1,650	1,640	1,630	1,620	1,620	1,610	1,600	1,590	1,580	1,570
70	1,570	1,560	1,550	1,540	1,530	1,520	1,510	1,510	1,500	1,490
71	1,480	1,470	1,460	1,460	1,450	1,440	1,430	1,420	1,410	1,410
72	1,400	1,390	1,380	1,370	1,360	1,360	1,350	1,340	1,330	1,320
73	1,310	1,310	1,300	1,290	1,280	1,270	1,270	1,260	1,250	1,240
74	1,230	1,230	1,220	1,210	1,200	1,190	1,180	1,180	1,170	1,160
75	1,150	1,140	1,140	1,130	1,120	1,110	1,100	1,100	1,090	1,080
76	1,070	1,060	1,060	1,050	1,040	1,030	1,020	1,020	1,010	1,000
77	990	980	980	970	960	950	950	940	930	920
78	910	910	900	890	880	880	870	860	850	840
79	840	830	820	810	800	800	790	780	770	770
80	760	750	740	730	730	720	710	700	700	690
81	680	670	670	660	650	640	640	630	620	610
82	600	600	590	580	570	570	560	550	540	540
83	530	520	510	510	500	490	480	470	470	460
84	450	440	440	430	420	410	410	400	390	380
85	380	370	360	350	350	340	330	320	320	310
86	300	290	290	280	270	260	260	250	240	230
87	230	220	210	200	200	190	180	170	170	160
88	150	140	140	130	120	110	100	100	90	80
89	80	70	60	50	50	40	30	20	20	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

22 minutes after release of balloon; altitude of balloon, 4,500 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	51, 440	50, 400	49, 450	48, 510	47, 610	46, 760	45, 900	45, 090	44, 300	43, 550
6	42, 810	42, 110	41, 420	40, 760	40, 120	39, 500	38, 890	38, 310	37, 740	37, 190
7	36, 650	36, 130	35, 620	35, 130	34, 650	34, 180	33, 730	33, 280	32, 850	32, 430
8	32, 020	31, 620	31, 230	30, 850	30, 470	30, 110	29, 750	29, 410	29, 070	28, 740
9	28, 410	28, 090	27, 780	27, 480	27, 180	26, 890	26, 610	26, 330	26, 050	25, 780
10	25, 520	25, 260	25, 010	24, 760	24, 520	24, 280	24, 050	23, 820	23, 590	23, 370
11	23, 150	22, 940	22, 730	22, 520	22, 320	22, 120	21, 920	21, 730	21, 540	21, 350
12	21, 170	20, 990	20, 810	20, 640	20, 470	20, 300	20, 130	19, 970	19, 810	19, 650
13	19, 490	19, 340	19, 190	19, 040	18, 890	18, 740	18, 600	18, 460	18, 320	18, 180
14	18, 050	17, 920	17, 780	17, 650	17, 530	17, 400	17, 280	17, 150	17, 030	16, 910
15	16, 790	16, 680	16, 560	16, 450	16, 340	16, 230	16, 120	16, 010	15, 900	15, 800
16	15, 690	15, 590	15, 490	15, 390	15, 290	15, 190	15, 090	15, 000	14, 900	14, 810
17	14, 720	14, 630	14, 540	14, 450	14, 360	14, 270	14, 190	14, 100	14, 020	13, 930
18	13, 850	13, 770	13, 690	13, 610	13, 530	13, 450	13, 370	13, 290	13, 220	13, 140
19	13, 070	13, 000	12, 920	12, 850	12, 780	12, 710	12, 640	12, 570	12, 500	12, 430
20	12, 360	12, 300	12, 230	12, 170	12, 100	12, 040	11, 970	11, 910	11, 850	11, 780
21	11, 720	11, 660	11, 600	11, 540	11, 480	11, 420	11, 370	11, 310	11, 250	11, 190
22	11, 140	11, 080	11, 030	10, 970	10, 920	11, 860	10, 810	10, 760	10, 710	10, 650
23	10, 600	10, 550	10, 500	10, 450	10, 400	10, 350	10, 300	10, 250	10, 200	10, 150
24	10, 110	10, 060	10, 010	9, 970	9, 920	9, 870	9, 830	9, 780	9, 740	9, 690
25	9, 650	9, 610	9, 560	9, 520	9, 480	9, 430	9, 390	9, 350	9, 310	9, 270
26	9, 230	9, 190	9, 150	9, 100	9, 070	9, 030	8, 990	8, 950	8, 910	8, 870
27	8, 830	8, 790	8, 760	8, 720	8, 680	8, 640	8, 610	8, 570	8, 540	8, 500
28	8, 460	8, 430	8, 390	8, 360	8, 320	8, 290	8, 250	8, 220	8, 190	8, 150
29	8, 120	8, 080	8, 050	8, 020	7, 990	7, 950	7, 920	7, 890	7, 860	7, 830
30	7, 790	7, 760	7, 730	7, 700	7, 670	7, 640	7, 610	7, 580	7, 550	7, 520
31	7, 490	7, 460	7, 430	7, 400	7, 370	7, 340	7, 310	7, 290	7, 260	7, 230
32	7, 200	7, 170	7, 150	7, 120	7, 090	7, 060	7, 040	7, 010	6, 980	6, 960
33	6, 930	6, 900	6, 880	6, 850	6, 820	6, 800	6, 770	6, 750	6, 720	6, 700
34	6, 670	6, 650	6, 620	6, 600	6, 570	6, 550	6, 520	6, 500	6, 470	6, 450
35	6, 430	6, 400	6, 380	6, 360	6, 330	6, 310	6, 290	6, 260	6, 240	6, 220
36	6, 190	6, 170	6, 150	6, 130	6, 100	6, 080	6, 060	6, 040	6, 020	5, 990
37	5, 970	5, 950	5, 930	5, 910	5, 890	5, 860	5, 840	5, 820	5, 800	5, 780
38	5, 760	5, 740	5, 720	5, 700	5, 680	5, 660	5, 640	5, 620	5, 600	5, 580
39	5, 560	5, 540	5, 520	5, 500	5, 480	5, 460	5, 440	5, 420	5, 400	5, 380
40	5, 360	5, 340	5, 320	5, 310	5, 290	5, 270	5, 250	5, 230	5, 210	5, 190
41	5, 180	5, 160	5, 140	5, 120	5, 100	5, 090	5, 070	5, 050	5, 030	5, 020
42	5, 000	4, 980	4, 960	4, 950	4, 930	4, 910	4, 890	4, 880	4, 860	4, 840
43	4, 830	4, 810	4, 790	4, 780	4, 760	4, 740	4, 730	4, 710	4, 690	4, 680
44	4, 660	4, 640	4, 630	4, 610	4, 600	4, 580	4, 560	4, 550	4, 530	4, 520
45	4, 500	4, 480	4, 470	4, 450	4, 440	4, 420	4, 410	4, 390	4, 380	4, 360
46	4, 350	4, 330	4, 320	4, 300	4, 290	4, 270	4, 260	4, 240	4, 230	4, 210
47	4, 200	4, 180	4, 170	4, 150	4, 140	4, 120	4, 110	4, 090	4, 080	4, 070

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

22 minutes after release of balloon; altitude of balloon 4,500 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	4,050	4,040	4,020	4,010	4,000	3,980	3,970	3,950	3,940	3,930
49	3,910	3,900	3,880	3,870	3,860	3,840	3,830	3,820	3,800	3,790
50	3,780	3,760	3,750	3,740	3,720	3,710	3,700	3,680	3,670	3,660
51	3,640	3,630	3,620	3,610	3,590	3,580	3,570	3,550	3,540	3,530
52	3,520	3,500	3,490	3,480	3,470	3,450	3,440	3,430	3,420	3,400
53	3,390	3,380	3,370	3,350	3,340	3,330	3,320	3,310	3,290	3,280
54	3,270	3,260	3,250	3,230	3,220	3,210	3,200	3,190	3,170	3,160
55	3,150	3,140	3,130	3,120	3,100	3,090	3,080	3,070	3,060	3,050
56	3,040	3,020	3,010	3,000	2,990	2,980	2,970	2,960	2,940	2,930
57	2,920	2,910	2,900	2,890	2,880	2,870	2,860	2,840	2,830	2,820
58	2,810	2,800	2,790	2,780	2,770	2,760	2,750	2,740	2,730	2,710
59	2,700	2,690	2,680	2,670	2,660	2,650	2,640	2,630	2,620	2,610
60	2,600	2,590	2,580	2,570	2,560	2,550	2,540	2,530	2,520	2,500
61	2,490	2,480	2,470	2,460	2,450	2,440	2,430	2,420	2,410	2,400
62	2,390	2,380	2,370	2,360	2,350	2,340	2,330	2,320	2,310	2,300
63	2,290	2,280	2,270	2,260	2,250	2,240	2,230	2,220	2,210	2,200
64	2,190	2,190	2,180	2,170	2,160	2,150	2,140	2,130	2,120	2,110
65	2,100	2,090	2,080	2,070	2,060	2,050	2,040	2,030	2,020	2,010
66	2,000	1,990	1,980	1,980	1,970	1,960	1,950	1,940	1,930	1,920
67	1,910	1,900	1,890	1,880	1,870	1,860	1,850	1,850	1,840	1,830
68	1,820	1,810	1,800	1,790	1,780	1,770	1,760	1,750	1,750	1,740
69	1,730	1,720	1,710	1,700	1,690	1,680	1,670	1,660	1,660	1,650
70	1,640	1,630	1,620	1,610	1,600	1,590	1,580	1,580	1,570	1,560
71	1,550	1,540	1,530	1,520	1,510	1,510	1,500	1,490	1,480	1,470
72	1,460	1,450	1,440	1,440	1,430	1,420	1,410	1,400	1,390	1,380
73	1,380	1,370	1,360	1,350	1,340	1,330	1,320	1,320	1,310	1,300
74	1,290	1,280	1,270	1,260	1,260	1,250	1,240	1,230	1,220	1,210
75	1,210	1,200	1,190	1,180	1,170	1,160	1,160	1,150	1,140	1,130
76	1,120	1,110	1,110	1,100	1,090	1,080	1,070	1,060	1,060	1,050
77	1,040	1,030	1,020	1,010	1,010	1,000	990	980	970	960
78	960	950	940	930	920	920	910	900	890	880
79	870	870	860	850	840	830	830	820	810	800
80	790	790	780	770	760	750	740	740	730	720
81	710	700	700	690	680	670	660	660	650	640
82	630	620	620	610	600	590	580	580	570	560
83	550	540	540	530	520	510	500	500	490	480
84	470	460	460	450	440	430	430	420	410	400
85	390	390	380	370	360	350	350	340	330	320
86	310	310	300	290	280	280	270	260	250	240
87	240	230	220	210	200	200	190	180	170	170
88	160	150	140	130	130	120	110	100	90	90
89	80	70	60	50	50	40	30	20	20	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

23 minutes after release of balloon; altitude of balloon, 4,700 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	53, 720	52, 640	51, 650	50, 670	49, 730	48, 830	47, 940	47, 090	46, 270	45, 480
6	44, 720	43, 980	43, 260	42, 570	41, 900	41, 250	40, 620	40, 010	39, 420	38, 840
7	38, 280	37, 730	37, 200	36, 690	36, 190	35, 700	35, 230	34, 760	34, 310	33, 870
8	33, 440	33, 020	32, 620	32, 220	31, 830	31, 450	31, 080	30, 710	30, 360	30, 010
9	29, 670	29, 340	29, 020	28, 700	28, 390	28, 090	27, 790	27, 500	27, 210	26, 930
10	26, 660	26, 390	26, 120	25, 860	25, 610	25, 360	25, 110	24, 870	24, 640	24, 410
11	24, 180	23, 960	23, 740	23, 520	23, 310	23, 100	22, 900	22, 700	22, 500	22, 300
12	22, 110	21, 920	21, 740	21, 560	21, 380	21, 200	21, 030	20, 860	20, 690	20, 520
13	20, 360	20, 200	20, 040	19, 880	19, 730	19, 580	19, 430	19, 280	19, 140	18, 990
14	18, 850	18, 710	18, 570	18, 440	18, 310	18, 170	18, 040	17, 920	17, 790	17, 660
15	17, 540	17, 420	17, 300	17, 180	17, 060	16, 950	16, 830	16, 720	16, 610	16, 500
16	16, 390	16, 280	16, 180	16, 070	15, 970	15, 870	15, 770	15, 670	15, 570	15, 470
17	15, 370	15, 280	15, 180	15, 090	15, 000	14, 910	14, 820	14, 730	14, 640	14, 550
18	14, 470	14, 380	14, 300	14, 210	14, 130	14, 050	13, 970	13, 890	13, 810	13, 730
19	13, 650	13, 570	13, 500	13, 420	13, 350	13, 270	13, 200	13, 130	13, 050	12, 980
20	12, 910	12, 840	12, 770	12, 710	12, 640	12, 570	12, 500	12, 440	12, 370	12, 310
21	12, 240	12, 180	12, 120	12, 060	11, 990	11, 930	11, 870	11, 810	11, 750	11, 690
22	11, 630	11, 570	11, 520	11, 460	11, 400	11, 350	11, 290	11, 240	11, 180	11, 130
23	11, 070	11, 020	10, 970	10, 910	10, 860	10, 810	10, 760	10, 710	10, 660	10, 610
24	10, 560	10, 510	10, 460	10, 410	10, 360	10, 310	10, 270	10, 220	10, 170	10, 130
25	10, 080	10, 030	9, 990	9, 940	9, 900	9, 850	9, 810	9, 770	9, 720	9, 680
26	9, 640	9, 590	9, 550	9, 510	9, 470	9, 430	9, 390	9, 350	9, 300	9, 260
27	9, 220	9, 180	9, 150	9, 110	9, 070	9, 030	8, 990	8, 950	8, 910	8, 880
28	8, 840	8, 800	8, 770	8, 730	8, 690	8, 660	8, 620	8, 580	8, 550	8, 510
29	8, 480	8, 440	8, 410	8, 380	8, 340	8, 310	8, 270	8, 240	8, 210	8, 170
30	8, 140	8, 110	8, 080	8, 040	8, 010	7, 980	7, 950	7, 920	7, 880	7, 850
31	7, 820	7, 790	7, 760	7, 730	7, 700	7, 670	7, 640	7, 610	7, 580	7, 550
32	7, 520	7, 490	7, 460	7, 430	7, 410	7, 380	7, 350	7, 320	7, 290	7, 270
33	7, 240	7, 210	7, 180	7, 160	7, 130	7, 100	7, 070	7, 050	7, 020	6, 990
34	6, 970	6, 940	6, 920	6, 890	6, 860	6, 840	6, 810	6, 790	6, 760	6, 740
35	6, 710	6, 690	6, 660	6, 640	6, 610	6, 590	6, 560	6, 540	6, 520	6, 490
36	6, 470	6, 450	6, 420	6, 400	6, 380	6, 350	6, 330	6, 310	6, 280	6, 260
37	6, 240	6, 210	6, 190	6, 170	6, 150	6, 130	6, 100	6, 080	6, 060	6, 040
38	6, 020	5, 990	5, 970	5, 950	5, 930	5, 910	5, 890	5, 870	5, 850	5, 820
39	5, 800	5, 780	5, 760	5, 740	5, 720	5, 700	5, 680	5, 660	5, 640	5, 620
40	5, 600	5, 580	5, 560	5, 540	5, 520	5, 500	5, 480	5, 460	5, 440	5, 430
41	5, 410	5, 390	5, 370	5, 350	5, 330	5, 310	5, 290	5, 280	5, 260	5, 240
42	5, 220	5, 200	5, 180	5, 170	5, 150	5, 130	5, 110	5, 090	5, 080	5, 060
43	5, 040	5, 020	5, 010	4, 990	4, 970	4, 950	4, 940	4, 920	4, 900	4, 880
44	4, 870	4, 850	4, 830	4, 820	4, 800	4, 780	4, 770	4, 750	4, 730	4, 720
45	4, 700	4, 680	4, 670	4, 650	4, 630	4, 620	4, 600	4, 590	4, 570	4, 550
46	4, 540	4, 520	4, 510	4, 490	4, 480	4, 460	4, 440	4, 430	4, 410	4, 400
47	4, 380	4, 370	4, 350	4, 340	4, 320	4, 310	4, 290	4, 280	4, 260	4, 250

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

23 minutes after release of balloon; altitude of balloon, 4,700 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	4, 230	4, 220	4, 200	4, 190	4, 170	4, 160	4, 140	4, 130	4, 110	4, 100
49	4, 090	4, 070	4, 060	4, 040	4, 030	4, 010	4, 000	3, 990	3, 970	3, 960
50	3, 940	3, 930	3, 920	3, 900	3, 890	3, 870	3, 860	3, 850	3, 830	3, 820
51	3, 810	3, 790	3, 780	3, 770	3, 750	3, 740	3, 730	3, 710	3, 700	3, 690
52	3, 670	3, 660	3, 650	3, 630	3, 620	3, 610	3, 590	3, 580	3, 570	3, 550
53	3, 540	3, 530	3, 520	3, 500	3, 490	3, 480	3, 470	3, 450	3, 440	3, 430
54	3, 410	3, 400	3, 390	3, 380	3, 360	3, 350	3, 340	3, 330	3, 320	3, 300
55	3, 290	3, 280	3, 270	3, 250	3, 240	3, 230	3, 220	3, 210	3, 190	3, 180
56	3, 170	3, 160	3, 150	3, 130	3, 120	3, 110	3, 100	3, 090	3, 080	3, 060
57	3, 050	3, 040	3, 030	3, 020	3, 010	2, 990	2, 980	2, 970	2, 960	2, 950
58	2, 940	2, 930	2, 910	2, 900	2, 890	2, 880	2, 870	2, 860	2, 850	2, 840
59	2, 820	2, 810	2, 800	2, 790	2, 780	2, 770	2, 760	2, 750	2, 740	2, 720
60	2, 710	2, 700	2, 690	2, 680	2, 670	2, 660	2, 650	2, 640	2, 630	2, 620
61	2, 610	2, 590	2, 580	2, 570	2, 560	2, 550	2, 540	2, 530	2, 520	2, 510
62	2, 500	2, 490	2, 480	2, 470	2, 460	2, 450	2, 440	2, 430	2, 420	2, 400
63	2, 390	2, 380	2, 370	2, 360	2, 350	2, 340	2, 330	2, 320	2, 310	2, 300
64	2, 290	2, 280	2, 270	2, 260	2, 250	2, 240	2, 230	2, 220	2, 210	2, 200
65	2, 190	2, 180	2, 170	2, 160	2, 150	2, 140	2, 130	2, 120	2, 110	2, 100
66	2, 090	2, 080	2, 070	2, 060	2, 050	2, 040	2, 030	2, 020	2, 010	2, 000
67	2, 000	1, 990	1, 980	1, 970	1, 960	1, 950	1, 940	1, 930	1, 920	1, 910
68	1, 900	1, 890	1, 880	1, 870	1, 860	1, 850	1, 840	1, 830	1, 820	1, 810
69	1, 800	1, 790	1, 790	1, 780	1, 770	1, 760	1, 750	1, 740	1, 730	1, 720
70	1, 710	1, 700	1, 690	1, 680	1, 670	1, 660	1, 660	1, 650	1, 640	1, 630
71	1, 620	1, 610	1, 600	1, 590	1, 580	1, 570	1, 560	1, 550	1, 550	1, 540
72	1, 530	1, 520	1, 510	1, 500	1, 490	1, 480	1, 470	1, 460	1, 460	1, 450
73	1, 440	1, 430	1, 420	1, 410	1, 400	1, 390	1, 380	1, 370	1, 370	1, 360
74	1, 350	1, 340	1, 330	1, 320	1, 310	1, 300	1, 290	1, 290	1, 280	1, 270
75	1, 260	1, 250	1, 240	1, 230	1, 220	1, 220	1, 210	1, 200	1, 190	1, 180
76	1, 170	1, 160	1, 150	1, 150	1, 140	1, 130	1, 120	1, 110	1, 100	1, 090
77	1, 090	1, 080	1, 070	1, 060	1, 050	1, 040	1, 030	1, 020	1, 020	1, 010
78	1, 000	990	980	970	960	960	950	940	930	920
79	910	910	900	890	880	870	860	850	850	840
80	830	820	810	800	790	790	780	770	760	750
81	740	740	730	720	710	700	690	690	680	670
82	660	650	640	640	630	620	610	600	590	590
83	580	570	560	550	540	540	530	520	510	500
84	490	490	480	470	460	450	440	440	430	420
85	410	400	390	390	380	370	360	350	340	340
86	330	320	310	300	300	290	280	270	260	250
87	250	240	230	220	210	210	200	190	180	170
88	160	160	150	140	130	120	110	110	100	90
89	80	70	70	60	50	40	30	20	20	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

24 minutes after release of balloon; altitude of balloon, 4,900 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	56, 010	54, 880	53, 850	52, 820	51, 840	50, 910	49, 980	49, 100	48, 240	47, 420
6	46, 620	45, 850	45, 110	44, 380	43, 680	43, 010	42, 350	41, 710	41, 090	40, 490
7	39, 910	39, 340	38, 790	38, 250	37, 730	37, 220	36, 720	36, 240	35, 770	35, 310
8	34, 870	34, 430	34, 000	33, 590	33, 180	32, 790	32, 400	32, 020	31, 650	31, 290
9	30, 940	30, 590	30, 250	29, 920	29, 600	29, 280	28, 970	28, 670	28, 370	28, 080
10	27, 790	27, 510	27, 230	26, 960	26, 700	26, 440	26, 180	25, 930	25, 690	25, 450
11	25, 210	24, 980	24, 750	24, 520	24, 300	24, 080	23, 870	23, 660	23, 450	23, 250
12	23, 050	22, 860	22, 660	22, 470	22, 290	22, 100	21, 920	21, 740	21, 570	21, 390
13	21, 220	21, 060	20, 890	20, 730	20, 570	20, 410	20, 250	20, 100	19, 950	19, 800
14	19, 650	19, 510	19, 360	19, 220	19, 080	18, 950	18, 810	18, 680	18, 550	18, 420
15	18, 290	18, 160	18, 030	17, 910	17, 790	17, 670	17, 550	17, 430	17, 320	17, 200
16	17, 090	16, 980	16, 870	16, 760	16, 650	16, 540	16, 440	16, 330	16, 230	16, 130
17	16, 030	15, 930	15, 830	15, 730	15, 640	15, 540	15, 450	15, 350	15, 260	15, 170
18	15, 080	14, 990	14, 900	14, 820	14, 730	14, 640	14, 560	14, 480	14, 390	14, 310
19	14, 230	14, 150	14, 070	13, 990	13, 910	13, 840	13, 760	13, 690	13, 610	13, 540
20	13, 460	13, 390	13, 320	13, 250	13, 180	13, 110	13, 040	12, 970	12, 900	12, 830
21	12, 760	12, 700	12, 630	12, 570	12, 500	12, 440	12, 380	12, 310	12, 250	12, 190
22	12, 130	12, 070	12, 010	11, 950	11, 890	11, 830	11, 770	11, 710	11, 660	11, 600
23	11, 540	11, 490	11, 430	11, 380	11, 320	11, 270	11, 220	11, 160	11, 110	11, 060
24	11, 010	10, 950	10, 900	10, 850	10, 800	10, 750	10, 700	10, 650	10, 600	10, 560
25	10, 510	10, 460	10, 410	10, 370	10, 320	10, 270	10, 230	10, 180	10, 140	10, 090
26	10, 050	10, 000	9, 960	9, 910	9, 870	9, 830	9, 790	9, 740	9, 700	9, 660
27	9, 620	9, 580	9, 530	9, 490	9, 450	9, 410	9, 370	9, 330	9, 290	9, 250
28	9, 220	9, 180	9, 140	9, 100	9, 060	9, 020	8, 990	8, 950	8, 910	8, 880
29	8, 840	8, 800	8, 770	8, 730	8, 700	8, 660	8, 630	8, 590	8, 560	8, 520
30	8, 490	8, 450	8, 420	8, 390	8, 350	8, 320	8, 290	8, 250	8, 220	8, 190
31	8, 160	8, 120	8, 090	8, 060	8, 030	8, 000	7, 960	7, 930	7, 900	7, 870
32	7, 840	7, 810	7, 780	7, 750	7, 720	7, 690	7, 660	7, 630	7, 600	7, 570
33	7, 550	7, 520	7, 490	7, 460	7, 430	7, 400	7, 370	7, 350	7, 320	7, 290
34	7, 260	7, 240	7, 210	7, 180	7, 160	7, 130	7, 100	7, 080	7, 050	7, 020
35	7, 000	6, 970	6, 950	6, 920	6, 890	6, 870	6, 840	6, 820	6, 790	6, 770
36	6, 740	6, 720	6, 690	6, 670	6, 650	6, 620	6, 600	6, 570	6, 550	6, 530
37	6, 500	6, 480	6, 460	6, 430	6, 410	6, 390	6, 360	6, 340	6, 320	6, 290
38	6, 270	6, 250	6, 230	6, 200	6, 180	6, 160	6, 140	6, 120	6, 090	6, 070
39	6, 050	6, 030	6, 010	5, 990	5, 970	5, 940	5, 920	5, 900	5, 880	5, 860
40	5, 840	5, 820	5, 800	5, 780	5, 760	5, 740	5, 720	5, 700	5, 680	5, 660
41	5, 640	5, 620	5, 600	5, 580	5, 560	5, 540	5, 520	5, 500	5, 480	5, 460
42	5, 440	5, 420	5, 400	5, 390	5, 370	5, 350	5, 330	5, 310	5, 290	5, 270
43	5, 250	5, 240	5, 220	5, 200	5, 180	5, 160	5, 150	5, 130	5, 110	5, 090
44	5, 070	5, 060	5, 040	5, 020	5, 000	4, 990	4, 970	4, 950	4, 930	4, 920
45	4, 900	4, 880	4, 870	4, 850	4, 830	4, 820	4, 800	4, 780	4, 770	4, 750
46	4, 730	4, 720	4, 700	4, 680	4, 670	4, 650	4, 630	4, 620	4, 600	4, 590
47	4, 570	4, 550	4, 540	4, 520	4, 510	4, 490	4, 470	4, 460	4, 440	4, 430

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

24 minutes after release of balloon; altitude of balloon, 4,900 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	4, 410	4, 400	4, 380	4, 370	4, 350	4, 340	4, 320	4, 300	4, 290	4, 270
49	4, 260	4, 240	4, 230	4, 210	4, 200	4, 190	4, 170	4, 160	4, 140	4, 130
50	4, 110	4, 100	4, 080	4, 070	4, 050	4, 040	4, 020	4, 010	4, 000	3, 980
51	3, 970	3, 950	3, 940	3, 930	3, 910	3, 900	3, 880	3, 870	3, 860	3, 840
52	3, 830	3, 810	3, 800	3, 790	3, 770	3, 760	3, 750	3, 730	3, 720	3, 710
53	3, 690	3, 680	3, 670	3, 650	3, 640	3, 630	3, 610	3, 600	3, 590	3, 570
54	3, 560	3, 550	3, 530	3, 520	3, 510	3, 500	3, 480	3, 470	3, 460	3, 440
55	3, 430	3, 420	3, 410	3, 390	3, 380	3, 370	3, 360	3, 340	3, 330	3, 320
56	3, 310	3, 290	3, 280	3, 270	3, 260	3, 240	3, 230	3, 220	3, 210	3, 190
57	3, 180	3, 170	3, 160	3, 150	3, 130	3, 120	3, 110	3, 100	3, 090	3, 070
58	3, 060	3, 050	3, 040	3, 030	3, 010	3, 000	2, 990	2, 980	2, 970	2, 960
59	2, 940	2, 930	2, 920	2, 910	2, 900	2, 890	2, 870	2, 860	2, 850	2, 840
60	2, 830	2, 820	2, 810	2, 790	2, 780	2, 770	2, 760	2, 750	2, 740	2, 730
61	2, 720	2, 700	2, 690	2, 680	2, 670	2, 660	2, 650	2, 640	2, 630	2, 620
62	2, 610	2, 590	2, 580	2, 570	2, 560	2, 550	2, 540	2, 530	2, 520	2, 510
63	2, 500	2, 490	2, 470	2, 460	2, 450	2, 440	2, 430	2, 420	2, 410	2, 400
64	2, 390	2, 380	2, 370	2, 360	2, 350	2, 340	2, 330	2, 320	2, 310	2, 300
65	2, 280	2, 270	2, 260	2, 250	2, 240	2, 230	2, 220	2, 210	2, 200	2, 190
66	2, 180	2, 170	2, 160	2, 150	2, 140	2, 130	2, 120	2, 110	2, 100	2, 090
67	2, 080	2, 070	2, 060	2, 050	2, 040	2, 030	2, 020	2, 010	2, 000	1, 990
68	1, 980	1, 970	1, 960	1, 950	1, 940	1, 930	1, 920	1, 910	1, 900	1, 890
69	1, 880	1, 870	1, 860	1, 850	1, 840	1, 830	1, 820	1, 810	1, 800	1, 790
70	1, 780	1, 770	1, 760	1, 750	1, 740	1, 740	1, 730	1, 720	1, 710	1, 700
71	1, 690	1, 680	1, 670	1, 660	1, 650	1, 640	1, 630	1, 620	1, 610	1, 600
72	1, 590	1, 580	1, 570	1, 560	1, 550	1, 540	1, 540	1, 530	1, 520	1, 510
73	1, 500	1, 490	1, 480	1, 470	1, 460	1, 450	1, 440	1, 430	1, 420	1, 410
74	1, 400	1, 400	1, 390	1, 380	1, 370	1, 360	1, 350	1, 340	1, 330	1, 320
75	1, 310	1, 300	1, 290	1, 290	1, 280	1, 270	1, 260	1, 250	1, 240	1, 230
76	1, 220	1, 210	1, 200	1, 190	1, 190	1, 180	1, 170	1, 160	1, 150	1, 140
77	1, 130	1, 120	1, 110	1, 100	1, 100	1, 090	1, 080	1, 070	1, 060	1, 050
78	1, 040	1, 030	1, 020	1, 010	1, 010	1, 000	990	980	970	960
79	950	940	930	930	920	910	900	890	880	870
80	860	860	850	840	830	820	810	800	790	780
81	780	770	760	750	740	730	720	710	710	700
82	690	680	670	660	650	650	640	630	620	610
83	600	590	580	580	570	560	550	540	530	520
84	510	510	500	490	480	470	460	450	450	440
85	430	420	410	400	390	390	380	370	360	350
86	340	330	330	320	310	300	290	280	270	270
87	260	250	240	230	220	210	210	200	190	180
88	170	160	150	150	140	130	120	110	100	90
89	90	80	70	60	50	40	30	30	20	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

26 minutes after release of balloon; altitude of balloon, 5,300 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	60, 580	59, 360	58, 250	57, 130	56, 070	55, 070	54, 060	53, 110	52, 180	51, 290
6	50, 430	49, 590	48, 790	48, 010	47, 260	46, 520	45, 810	45, 120	44, 450	43, 800
7	43, 160	42, 550	41, 950	41, 370	40, 810	40, 260	39, 720	39, 200	38, 690	38, 190
8	37, 710	37, 240	36, 780	36, 330	35, 890	35, 460	35, 040	34, 640	34, 240	33, 850
9	33, 460	33, 090	32, 720	32, 360	32, 010	31, 670	31, 340	31, 010	30, 680	30, 370
10	30, 060	29, 750	29, 460	29, 160	28, 880	28, 600	28, 320	28, 050	27, 780	27, 520
11	27, 270	27, 010	26, 770	26, 520	26, 280	26, 050	25, 820	25, 590	25, 370	25, 150
12	24, 930	24, 720	24, 510	24, 310	24, 110	23, 910	23, 710	23, 520	23, 330	23, 140
13	22, 960	22, 780	22, 600	22, 420	22, 250	22, 080	21, 910	21, 740	21, 580	21, 420
14	21, 260	21, 100	20, 950	20, 790	20, 640	20, 490	20, 350	20, 200	20, 060	19, 920
15	19, 780	19, 640	19, 510	19, 370	19, 240	19, 110	18, 980	18, 860	18, 730	18, 610
16	18, 480	18, 360	18, 240	18, 120	18, 010	17, 890	17, 780	17, 670	17, 550	17, 440
17	17, 340	17, 230	17, 120	17, 020	16, 910	16, 810	16, 710	16, 610	16, 510	16, 410
18	16, 310	16, 220	16, 120	16, 030	15, 930	15, 840	15, 750	15, 660	15, 570	15, 480
19	15, 390	15, 310	15, 220	15, 130	15, 050	14, 970	14, 880	14, 800	14, 720	14, 640
20	14, 560	14, 480	14, 400	14, 330	14, 250	14, 180	14, 100	14, 030	13, 950	13, 880
21	13, 810	13, 740	13, 660	13, 590	13, 520	13, 450	13, 390	13, 320	13, 250	13, 180
22	13, 120	13, 050	12, 990	12, 920	12, 860	12, 800	12, 730	12, 670	12, 610	12, 550
23	12, 490	12, 430	12, 370	12, 310	12, 250	12, 190	12, 130	12, 070	12, 020	11, 960
24	11, 900	11, 850	11, 790	11, 740	11, 680	11, 630	11, 580	11, 520	11, 470	11, 420
25	11, 370	11, 310	11, 260	11, 210	11, 160	11, 110	11, 060	11, 010	10, 960	10, 910
26	10, 870	10, 820	10, 770	10, 720	10, 680	10, 630	10, 580	10, 540	10, 490	10, 450
27	10, 400	10, 360	10, 310	10, 270	10, 220	10, 180	10, 140	10, 090	10, 050	10, 010
28	9, 970	9, 930	9, 880	9, 840	9, 800	9, 760	9, 720	9, 680	9, 640	9, 600
29	9, 560	9, 520	9, 480	9, 440	9, 410	9, 370	9, 330	9, 290	9, 250	9, 220
30	9, 180	9, 140	9, 110	9, 070	9, 030	9, 000	8, 960	8, 930	8, 890	8, 860
31	8, 820	8, 790	8, 750	8, 720	8, 680	8, 650	8, 620	8, 580	8, 550	8, 510
32	8, 480	8, 450	8, 420	8, 380	8, 350	8, 320	8, 290	8, 260	8, 220	8, 190
33	8, 160	8, 130	8, 100	8, 070	8, 040	8, 010	7, 980	7, 950	7, 920	7, 890
34	7, 860	7, 830	7, 800	7, 770	7, 740	7, 710	7, 680	7, 650	7, 630	7, 600
35	7, 570	7, 540	7, 510	7, 490	7, 460	7, 430	7, 400	7, 380	7, 350	7, 320
36	7, 290	7, 270	7, 240	7, 210	7, 190	7, 160	7, 140	7, 110	7, 080	7, 060
37	7, 030	7, 010	6, 980	6, 960	6, 930	6, 910	6, 880	6, 860	6, 830	6, 810
38	6, 780	6, 760	6, 740	6, 710	6, 690	6, 660	6, 640	6, 620	6, 590	6, 570
39	6, 540	6, 520	6, 500	6, 480	6, 450	6, 430	6, 410	6, 380	6, 360	6, 340
40	6, 320	6, 290	6, 270	6, 250	6, 230	6, 210	6, 180	6, 160	6, 140	6, 120
41	6, 100	6, 080	6, 050	6, 030	6, 010	5, 990	5, 970	5, 950	5, 930	5, 910
42	5, 890	5, 870	5, 840	5, 820	5, 800	5, 780	5, 760	5, 740	5, 720	5, 700
43	5, 680	5, 660	5, 640	5, 620	5, 600	5, 590	5, 570	5, 550	5, 530	5, 510
44	5, 490	5, 470	5, 450	5, 430	5, 410	5, 390	5, 370	5, 360	5, 340	5, 320
45	5, 300	5, 280	5, 260	5, 240	5, 230	5, 210	5, 190	5, 170	5, 150	5, 140
46	5, 120	5, 100	5, 080	5, 060	5, 050	5, 030	5, 010	4, 990	4, 980	4, 960
47	4, 940	4, 930	4, 910	4, 890	4, 870	4, 860	4, 840	4, 820	4, 810	4, 790

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

26 minutes after release of balloon; altitude of balloon, 5,300 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	4, 770	4, 760	4, 740	4, 720	4, 710	4, 690	4, 670	4, 660	4, 640	4, 620
49	4, 610	4, 590	4, 570	4, 560	4, 540	4, 530	4, 510	4, 490	4, 480	4, 460
50	4, 450	4, 430	4, 420	4, 400	4, 380	4, 370	4, 350	4, 340	4, 320	4, 310
51	4, 290	4, 280	4, 260	4, 250	4, 230	4, 220	4, 200	4, 190	4, 170	4, 160
52	4, 140	4, 130	4, 110	4, 100	4, 080	4, 070	4, 050	4, 040	4, 020	4, 010
53	3, 990	3, 980	3, 960	3, 950	3, 940	3, 920	3, 910	3, 890	3, 880	3, 860
54	3, 850	3, 840	3, 820	3, 810	3, 790	3, 780	3, 770	3, 750	3, 740	3, 720
55	3, 710	3, 700	3, 680	3, 670	3, 660	3, 640	3, 630	3, 620	3, 600	3, 590
56	3, 570	3, 560	3, 550	3, 530	3, 520	3, 510	3, 490	3, 480	3, 470	3, 460
57	3, 440	3, 430	3, 420	3, 400	3, 390	3, 380	3, 360	3, 350	3, 340	3, 320
58	3, 310	3, 300	3, 290	3, 270	3, 260	3, 250	3, 240	3, 220	3, 210	3, 200
59	3, 180	3, 170	3, 160	3, 150	3, 130	3, 120	3, 110	3, 100	3, 080	3, 070
60	3, 060	3, 050	3, 040	3, 020	3, 010	3, 000	2, 990	2, 970	2, 960	2, 950
61	2, 940	2, 930	2, 910	2, 900	2, 890	2, 880	2, 870	2, 850	2, 840	2, 830
62	2, 820	2, 810	2, 790	2, 780	2, 770	2, 760	2, 750	2, 740	2, 720	2, 710
63	2, 700	2, 690	2, 680	2, 670	2, 650	2, 640	2, 630	2, 620	2, 610	2, 600
64	2, 580	2, 570	2, 560	2, 550	2, 540	2, 530	2, 520	2, 510	2, 490	2, 480
65	2, 470	2, 460	2, 450	2, 440	2, 430	2, 420	2, 400	2, 390	2, 380	2, 370
66	2, 360	2, 350	2, 340	2, 330	2, 320	2, 300	2, 290	2, 280	2, 270	2, 260
67	2, 250	2, 240	2, 230	2, 220	3, 210	2, 200	2, 180	2, 170	2, 160	2, 150
68	2, 140	2, 130	2, 120	2, 110	2, 100	2, 090	2, 080	2, 070	2, 060	2, 050
69	2, 030	2, 020	2, 010	2, 000	1, 990	1, 980	1, 970	1, 960	1, 950	1, 940
70	1, 930	1, 920	1, 910	1, 900	1, 890	1, 880	1, 870	1, 860	1, 850	1, 840
71	1, 820	1, 810	1, 800	1, 790	1, 780	1, 770	1, 760	1, 750	1, 740	1, 730
72	1, 720	1, 710	1, 700	1, 690	1, 680	1, 670	1, 660	1, 650	1, 640	1, 630
73	1, 620	1, 610	1, 600	1, 590	1, 580	1, 570	1, 560	1, 550	1, 540	1, 530
74	1, 520	1, 510	1, 500	1, 490	1, 480	1, 470	1, 460	1, 450	1, 440	1, 430
75	1, 420	1, 410	1, 400	1, 390	1, 380	1, 370	1, 360	1, 350	1, 340	1, 330
76	1, 320	1, 310	1, 300	1, 290	1, 280	1, 270	1, 260	1, 250	1, 240	1, 230
77	1, 220	1, 210	1, 200	1, 190	1, 180	1, 180	1, 170	1, 160	1, 150	1, 140
78	1, 130	1, 120	1, 110	1, 100	1, 090	1, 080	1, 070	1, 060	1, 050	1, 040
79	1, 030	1, 020	1, 010	1, 000	990	980	970	960	950	940
80	930	920	920	910	900	890	880	870	860	850
81	840	830	820	810	800	790	780	770	760	750
82	740	740	730	720	710	700	690	680	670	660
83	650	640	630	620	610	600	590	590	580	570
84	560	550	540	530	520	510	500	490	480	470
85	460	450	450	440	430	420	410	400	390	380
86	370	360	350	340	330	320	310	310	300	290
87	280	270	260	250	240	230	220	210	200	190
88	180	180	170	160	150	140	130	120	110	100
89	90	80	70	60	60	50	40	30	20	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

27 minutes after release of balloon; altitude of balloon, 5,500 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	62, 870	61, 600	60, 440	59, 290	58, 190	57, 140	56, 100	55, 110	54, 150	53, 220
6	52, 330	51, 460	50, 630	49, 820	49, 030	48, 270	47, 530	46, 820	46, 120	45, 450
7	44, 790	44, 160	43, 540	42, 930	42, 350	41, 780	41, 220	40, 680	40, 150	39, 640
8	39, 130	38, 650	38, 170	37, 700	37, 250	36, 800	36, 370	35, 940	35, 530	35, 120
9	34, 730	34, 340	33, 960	33, 590	33, 220	32, 870	32, 520	32, 180	31, 840	31, 510
10	31, 190	30, 880	30, 570	30, 260	29, 970	29, 680	29, 390	29, 110	28, 830	28, 560
11	28, 300	28, 030	27, 780	27, 520	27, 280	27, 030	26, 790	26, 560	26, 330	26, 100
12	25, 880	25, 660	25, 440	25, 230	25, 020	24, 810	24, 610	24, 410	24, 210	24, 010
13	23, 820	23, 630	23, 450	23, 270	23, 090	22, 910	22, 730	22, 560	22, 390	22, 220
14	22, 060	21, 900	21, 740	21, 580	21, 420	21, 270	21, 120	20, 960	20, 820	20, 670
15	20, 530	20, 380	20, 240	20, 100	19, 970	19, 830	19, 700	19, 570	19, 440	19, 310
16	19, 180	19, 060	18, 930	18, 810	18, 690	18, 570	18, 450	18, 330	18, 220	18, 100
17	17, 990	17, 880	17, 770	17, 660	17, 550	17, 440	17, 340	17, 230	17, 130	17, 030
18	16, 930	16, 830	16, 730	16, 630	16, 530	16, 440	16, 340	16, 250	16, 160	16, 060
19	15, 970	15, 880	15, 790	15, 710	15, 620	15, 530	15, 450	15, 360	15, 280	15, 190
20	15, 110	15, 030	14, 950	14, 870	14, 790	14, 710	14, 630	14, 560	14, 480	14, 400
21	14, 330	14, 250	14, 180	14, 110	14, 030	13, 960	13, 890	13, 820	13, 750	13, 680
22	13, 610	13, 540	13, 480	13, 410	13, 340	13, 280	13, 210	13, 150	13, 080	13, 020
23	12, 960	12, 890	12, 830	12, 770	12, 710	12, 650	12, 590	12, 530	12, 470	12, 410
24	12, 350	12, 300	12, 240	12, 180	12, 120	12, 070	12, 010	11, 960	11, 900	11, 850
25	11, 790	11, 740	11, 690	11, 640	11, 580	11, 530	11, 480	11, 430	11, 380	11, 330
26	11, 280	11, 230	11, 180	11, 130	11, 080	11, 030	10, 980	10, 940	10, 890	10, 840
27	10, 790	10, 750	10, 700	10, 660	10, 610	10, 570	10, 520	10, 480	10, 430	10, 390
28	10, 340	10, 300	10, 260	10, 210	10, 170	10, 130	10, 090	10, 050	10, 000	9, 960
29	9, 920	9, 880	9, 840	9, 800	9, 760	9, 720	9, 680	9, 640	9, 600	9, 570
30	9, 530	9, 490	9, 450	9, 410	9, 370	9, 340	9, 300	9, 260	9, 230	9, 190
31	9, 150	9, 120	9, 080	9, 050	9, 010	8, 980	8, 940	8, 910	8, 870	8, 840
32	8, 800	8, 770	8, 730	8, 700	8, 670	8, 630	8, 600	8, 570	8, 530	8, 500
33	8, 470	8, 440	8, 410	8, 370	8, 340	8, 310	8, 280	8, 250	8, 220	8, 190
34	8, 150	8, 120	8, 090	8, 060	8, 030	8, 000	7, 970	7, 940	7, 910	7, 880
35	7, 850	7, 830	7, 800	7, 770	7, 740	7, 710	7, 680	7, 650	7, 630	7, 600
36	7, 570	7, 540	7, 510	7, 490	7, 460	7, 430	7, 410	7, 380	7, 350	7, 330
37	7, 300	7, 270	7, 250	7, 220	7, 190	7, 170	7, 140	7, 120	7, 090	7, 070
38	7, 040	7, 010	6, 990	6, 960	6, 940	6, 910	6, 890	6, 870	6, 840	6, 820
39	6, 790	6, 770	6, 740	6, 720	6, 700	6, 670	6, 650	6, 620	6, 600	6, 580
40	6, 550	6, 530	6, 510	6, 490	6, 460	6, 440	6, 420	6, 390	6, 370	6, 350
41	6, 330	6, 300	6, 280	6, 260	6, 240	6, 220	6, 190	6, 170	6, 150	6, 130
42	6, 110	6, 090	6, 070	6, 040	6, 020	6, 000	5, 980	5, 960	5, 940	5, 920
43	5, 900	5, 880	5, 860	5, 840	5, 820	5, 800	5, 780	5, 760	5, 740	5, 720
44	5, 700	5, 680	5, 660	5, 640	5, 620	5, 600	5, 580	5, 560	5, 540	5, 520
45	5, 500	5, 480	5, 460	5, 440	5, 420	5, 400	5, 390	5, 370	5, 350	5, 330
46	5, 310	5, 290	5, 270	5, 260	5, 240	5, 220	5, 200	5, 180	5, 170	5, 150
47	5, 130	5, 110	5, 090	5, 080	5, 060	5, 040	5, 020	5, 000	4, 990	4, 970

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

27 minutes after release of balloon; altitude of balloon, 5,500 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	4, 950	4, 930	4, 920	4, 900	4, 880	4, 870	4, 850	4, 830	4, 810	4, 800
49	4, 780	4, 760	4, 750	4, 730	4, 710	4, 700	4, 680	4, 660	4, 650	4, 630
50	4, 620	4, 600	4, 580	4, 570	4, 550	4, 530	4, 520	4, 500	4, 490	4, 470
51	4, 450	4, 440	4, 420	4, 410	4, 390	4, 370	4, 360	4, 340	4, 330	4, 310
52	4, 300	4, 280	4, 270	4, 250	4, 240	4, 220	4, 210	4, 190	4, 170	4, 160
53	4, 140	4, 130	4, 110	4, 100	4, 080	4, 070	4, 060	4, 040	4, 030	4, 010
54	4, 000	3, 980	3, 970	3, 950	3, 940	3, 920	3, 910	3, 890	3, 880	3, 870
55	3, 850	3, 840	3, 820	3, 810	3, 790	3, 780	3, 770	3, 750	3, 740	3, 720
56	3, 710	3, 700	3, 680	3, 670	3, 650	3, 640	3, 630	3, 610	3, 600	3, 590
57	3, 570	3, 560	3, 540	3, 530	3, 520	3, 500	3, 490	3, 480	3, 460	3, 450
58	3, 440	3, 420	3, 410	3, 400	3, 380	3, 370	3, 360	3, 340	3, 330	3, 320
59	3, 300	3, 290	3, 280	3, 270	3, 250	3, 240	3, 230	3, 210	3, 200	3, 190
60	3, 180	3, 160	3, 150	3, 140	3, 120	3, 110	3, 100	3, 090	3, 070	3, 060
61	3, 050	3, 040	3, 020	3, 010	3, 000	2, 990	2, 970	2, 960	2, 950	2, 940
62	2, 920	2, 910	2, 900	2, 890	2, 880	2, 860	2, 850	2, 840	2, 830	2, 810
63	2, 800	2, 790	2, 780	2, 770	2, 750	2, 740	2, 730	2, 720	2, 710	2, 690
64	2, 680	2, 670	2, 660	2, 650	2, 640	2, 620	2, 610	2, 600	2, 590	2, 580
65	2, 560	2, 550	2, 540	2, 530	2, 520	2, 510	2, 490	2, 480	2, 470	2, 460
66	2, 450	2, 440	2, 430	2, 410	2, 400	2, 390	2, 380	2, 370	2, 360	2, 350
67	2, 330	2, 320	2, 310	2, 300	2, 290	2, 280	2, 270	2, 260	2, 240	2, 230
68	2, 220	2, 210	2, 200	2, 190	2, 180	2, 170	2, 160	2, 140	2, 130	2, 120
69	2, 110	2, 100	2, 090	2, 080	2, 070	2, 060	2, 050	2, 030	2, 020	2, 010
70	2, 000	1, 990	1, 980	1, 970	1, 960	1, 950	1, 940	1, 930	1, 920	1, 900
71	1, 890	1, 880	1, 870	1, 860	1, 850	1, 840	1, 830	1, 820	1, 810	1, 800
72	1, 790	1, 780	1, 770	1, 760	1, 740	1, 730	1, 720	1, 710	1, 700	1, 690
73	1, 680	1, 670	1, 660	1, 650	1, 640	1, 630	1, 620	1, 610	1, 600	1, 590
74	1, 580	1, 570	1, 560	1, 550	1, 540	1, 530	1, 510	1, 500	1, 490	1, 480
75	1, 470	1, 460	1, 450	1, 440	1, 430	1, 420	1, 410	1, 400	1, 390	1, 380
76	1, 370	1, 360	1, 350	1, 340	1, 330	1, 320	1, 310	1, 300	1, 290	1, 280
77	1, 270	1, 260	1, 250	1, 240	1, 230	1, 220	1, 210	1, 200	1, 190	1, 180
78	1, 170	1, 160	1, 150	1, 140	1, 130	1, 120	1, 110	1, 100	1, 090	1, 080
79	1, 070	1, 060	1, 050	1, 040	1, 030	1, 020	1, 010	1, 000	990	980
80	970	960	950	940	930	920	910	900	890	880
81	870	860	850	840	830	820	810	800	790	780
82	770	760	750	740	730	720	710	700	690	690
83	680	670	660	650	640	630	620	610	600	590
84	580	570	560	550	540	530	520	510	500	490
85	480	470	460	450	440	430	420	410	400	390
86	380	380	370	360	350	340	330	320	310	300
87	290	280	270	260	250	240	230	220	210	200
88	190	180	170	160	150	140	130	120	110	110
89	100	90	80	70	60	50	40	30	20	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

28 minutes after release of balloon; altitude of balloon, 5,700 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	65, 150	63, 840	62, 640	61, 450	60, 310	59, 220	58, 140	57, 110	56, 120	55, 160
6	54, 230	53, 340	52, 470	51, 630	50, 820	50, 030	49, 260	48, 520	47, 800	47, 100
7	46, 420	45, 760	45, 120	44, 500	43, 890	43, 300	42, 720	42, 160	41, 610	41, 080
8	40, 560	40, 050	39, 560	39, 070	38, 600	38, 140	37, 690	37, 250	36, 820	36, 400
9	35, 990	35, 590	35, 190	34, 810	34, 430	34, 060	33, 700	33, 350	33, 000	32, 660
10	32, 330	32, 000	31, 680	31, 360	31, 060	30, 750	30, 460	30, 170	29, 880	29, 600
11	29, 320	29, 050	28, 790	28, 530	28, 270	28, 020	27, 770	27, 520	27, 280	27, 050
12	26, 820	26, 590	26, 360	26, 140	25, 930	25, 710	25, 500	25, 290	25, 090	24, 890
13	24, 690	24, 490	24, 300	24, 110	23, 930	23, 740	23, 560	23, 380	23, 210	23, 030
14	22, 860	22, 690	22, 530	22, 360	22, 200	22, 040	21, 880	21, 730	21, 570	21, 420
15	21, 270	21, 130	20, 980	20, 840	20, 690	20, 550	20, 420	20, 280	20, 140	19, 010
16	19, 880	19, 750	19, 620	19, 490	19, 370	19, 240	19, 120	19, 000	18, 880	18, 760
17	18, 640	18, 530	18, 410	18, 300	18, 190	18, 080	17, 970	17, 860	17, 750	17, 650
18	17, 540	17, 440	17, 340	17, 240	17, 130	17, 040	16, 940	16, 840	16, 740	16, 650
19	16, 550	16, 460	16, 370	16, 280	16, 190	16, 100	16, 010	15, 920	15, 830	15, 750
20	15, 660	15, 580	15, 490	15, 410	15, 330	15, 250	15, 160	15, 080	15, 010	14, 930
21	14, 850	14, 770	14, 700	14, 620	14, 540	14, 470	14, 400	14, 320	14, 250	14, 180
22	14, 110	14, 040	13, 970	13, 900	13, 830	13, 760	13, 690	13, 630	13, 560	13, 490
23	13, 430	13, 360	13, 300	13, 240	13, 170	13, 110	13, 050	12, 990	12, 920	12, 860
24	12, 800	12, 740	12, 680	12, 620	12, 570	12, 510	12, 450	12, 390	12, 340	12, 280
25	12, 220	12, 170	12, 110	12, 060	12, 000	11, 950	11, 900	11, 840	11, 790	11, 740
26	11, 690	11, 640	11, 580	11, 530	11, 480	11, 430	11, 380	11, 330	11, 280	11, 240
27	11, 190	11, 140	11, 090	11, 040	11, 000	10, 950	10, 900	10, 860	10, 810	10, 770
28	10, 720	10, 670	10, 630	10, 590	10, 540	10, 500	10, 450	10, 410	10, 370	10, 330
29	10, 280	10, 240	10, 200	10, 160	10, 120	10, 070	10, 030	9, 990	9, 950	9, 910
30	9, 870	9, 830	9, 790	9, 750	9, 720	9, 680	9, 640	9, 600	9, 560	9, 520
31	9, 490	9, 450	9, 410	9, 380	9, 340	9, 300	9, 270	9, 230	9, 190	9, 160
32	9, 120	9, 090	9, 050	9, 020	8, 980	8, 950	8, 910	8, 880	8, 840	8, 810
33	8, 780	8, 740	8, 710	8, 680	8, 640	8, 610	8, 580	8, 550	8, 510	8, 480
34	8, 450	8, 420	8, 390	8, 360	8, 320	8, 290	8, 260	8, 230	8, 200	8, 170
35	8, 140	8, 110	8, 080	8, 050	8, 020	7, 990	7, 960	7, 930	7, 900	7, 870
36	7, 850	7, 820	7, 790	7, 760	7, 730	7, 700	7, 680	7, 650	7, 620	7, 590
37	7, 560	7, 540	7, 510	7, 480	7, 460	7, 430	7, 400	7, 370	7, 350	7, 320
38	7, 300	7, 270	7, 240	7, 220	7, 190	7, 170	7, 140	7, 110	7, 090	7, 060
39	7, 040	7, 010	6, 990	6, 960	6, 940	6, 910	6, 890	6, 870	6, 840	6, 820
40	6, 790	6, 770	6, 740	6, 720	6, 700	6, 670	6, 650	6, 630	6, 600	6, 580
41	6, 560	6, 530	6, 510	6, 490	6, 470	6, 440	6, 420	6, 400	6, 370	6, 350
42	6, 330	6, 310	6, 290	6, 260	6, 240	6, 220	6, 200	6, 180	6, 160	6, 130
43	6, 110	6, 090	6, 070	6, 050	6, 030	6, 010	5, 990	5, 960	5, 940	5, 920
44	5, 900	5, 880	5, 860	5, 840	5, 820	5, 800	5, 780	5, 760	5, 740	5, 720
45	5, 700	5, 680	5, 660	5, 640	5, 620	5, 600	5, 580	5, 560	5, 540	5, 520
46	5, 500	5, 490	5, 470	5, 450	5, 430	5, 410	5, 390	5, 370	5, 350	5, 330
47	5, 320	5, 300	5, 280	5, 260	5, 240	5, 220	5, 200	5, 190	5, 170	5, 150

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

28 minutes after release of balloon; altitude of balloon 5,700 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	5, 130	5, 110	5, 100	5, 080	5, 060	5, 040	5, 030	5, 010	4, 990	4, 970
49	4, 960	4, 940	4, 920	4, 900	4, 890	4, 870	4, 850	4, 830	4, 820	4, 800
50	4, 780	4, 770	4, 750	4, 730	4, 720	4, 700	4, 680	4, 670	4, 650	4, 630
51	4, 620	4, 600	4, 580	4, 570	4, 550	4, 530	4, 520	4, 500	4, 490	4, 470
52	4, 450	4, 440	4, 420	4, 410	4, 390	4, 370	4, 360	4, 340	4, 330	4, 310
53	4, 300	4, 280	4, 260	4, 250	4, 230	4, 220	4, 200	4, 190	4, 170	4, 160
54	4, 140	4, 130	4, 110	4, 100	4, 080	4, 070	4, 050	4, 040	4, 020	4, 010
55	3, 990	3, 980	3, 960	3, 950	3, 930	3, 920	3, 900	3, 890	3, 870	3, 860
56	3, 840	3, 830	3, 820	3, 800	3, 790	3, 770	3, 760	3, 740	3, 730	3, 720
57	3, 700	3, 690	3, 670	3, 660	3, 650	3, 630	3, 620	3, 600	3, 590	3, 580
58	3, 560	3, 550	3, 530	3, 520	3, 510	3, 490	3, 480	3, 470	3, 450	3, 440
59	3, 430	3, 410	3, 400	3, 380	3, 370	3, 360	3, 340	3, 330	3, 320	3, 300
60	3, 290	3, 280	3, 260	3, 250	3, 240	3, 230	3, 210	3, 200	3, 190	3, 170
61	3, 160	3, 150	3, 130	3, 120	3, 110	3, 100	3, 080	3, 070	3, 060	3, 040
62	3, 030	3, 020	3, 010	2, 990	2, 980	2, 970	2, 950	2, 940	2, 930	2, 920
63	2, 900	2, 890	2, 880	2, 870	2, 850	2, 840	2, 830	2, 820	2, 800	2, 790
64	2, 780	2, 770	2, 760	2, 740	2, 730	2, 720	2, 710	2, 690	2, 680	2, 670
65	2, 660	2, 650	2, 630	2, 620	2, 610	2, 600	2, 590	2, 570	2, 560	2, 550
66	2, 540	2, 530	2, 510	2, 500	2, 490	2, 480	2, 470	2, 450	2, 440	2, 430
67	2, 420	2, 410	2, 400	2, 380	2, 370	2, 360	2, 350	2, 340	2, 330	2, 310
68	2, 300	2, 290	2, 280	2, 270	2, 260	2, 250	2, 230	2, 220	2, 210	2, 200
69	2, 190	2, 180	2, 170	2, 150	2, 140	2, 130	2, 120	2, 110	2, 100	2, 090
70	2, 070	2, 060	2, 050	2, 040	2, 030	2, 020	2, 010	2, 000	1, 980	1, 970
71	1, 960	1, 950	1, 940	1, 930	1, 920	1, 910	1, 900	1, 880	1, 870	1, 860
72	1, 850	1, 840	1, 830	1, 820	1, 810	1, 800	1, 790	1, 780	1, 760	1, 750
73	1, 740	1, 730	1, 720	1, 710	1, 700	1, 690	1, 680	1, 670	1, 660	1, 650
74	1, 630	1, 620	1, 610	1, 600	1, 590	1, 580	1, 570	1, 560	1, 550	1, 540
75	1, 530	1, 520	1, 510	1, 500	1, 480	1, 470	1, 460	1, 450	1, 440	1, 430
76	1, 420	1, 410	1, 400	1, 390	1, 380	1, 370	1, 360	1, 350	1, 340	1, 330
77	1, 320	1, 310	1, 300	1, 280	1, 270	1, 260	1, 250	1, 240	1, 230	1, 220
78	1, 210	1, 200	1, 190	1, 180	1, 170	1, 160	1, 150	1, 140	1, 130	1, 120
79	1, 110	1, 100	1, 090	1, 080	1, 070	1, 060	1, 050	1, 040	1, 030	1, 020
80	1, 000	990	980	970	960	950	940	930	920	910
81	900	890	880	870	860	850	840	830	820	810
82	800	790	780	770	760	750	740	730	720	710
83	700	690	680	670	660	650	640	630	620	610
84	600	590	580	570	560	550	540	530	520	510
85	500	490	480	470	460	450	440	430	420	410
86	400	390	380	370	360	350	340	330	320	310
87	300	290	280	270	260	250	240	230	220	210
88	200	190	180	170	160	150	140	130	120	110
89	100	90	80	70	60	50	40	30	20	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

29 minutes after release of balloon; altitude of balloon, 5,900 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	67, 440	66, 080	64, 840	63, 600	62, 420	61, 300	60, 180	59, 120	58, 090	57, 090
6	56, 130	55, 210	54, 310	53, 440	52, 600	51, 780	50, 990	50, 220	49, 480	48, 760
7	48, 050	47, 370	46, 700	46, 060	45, 430	44, 820	44, 220	43, 640	43, 070	42, 520
8	41, 980	41, 460	40, 940	40, 440	39, 950	39, 480	39, 010	38, 560	38, 110	37, 680
9	37, 250	36, 830	36, 430	36, 030	35, 640	35, 260	34, 880	34, 520	34, 160	33, 810
10	33, 460	33, 120	32, 790	32, 470	32, 150	31, 830	31, 530	31, 230	30, 930	30, 640
11	30, 350	30, 070	29, 800	29, 530	29, 260	29, 000	28, 740	28, 490	28, 240	28, 000
12	27, 760	27, 520	27, 290	27, 060	26, 830	26, 610	26, 390	26, 180	25, 970	25, 760
13	25, 560	25, 350	25, 150	24, 960	24, 770	24, 580	24, 390	24, 200	24, 020	23, 840
14	23, 660	23, 490	23, 320	23, 150	22, 980	22, 810	22, 650	22, 490	22, 330	22, 170
15	22, 020	21, 870	21, 720	21, 570	21, 420	21, 270	21, 130	20, 990	20, 850	20, 710
16	20, 580	20, 440	20, 310	20, 180	20, 050	19, 920	19, 790	19, 670	19, 540	19, 420
17	19, 300	19, 180	19, 060	18, 940	18, 830	18, 710	18, 600	18, 490	18, 380	18, 270
18	18, 160	18, 050	17, 940	17, 840	17, 740	17, 630	17, 530	17, 430	17, 330	17, 230
19	17, 130	17, 040	16, 940	16, 850	16, 750	16, 660	16, 570	16, 480	16, 390	16, 300
20	16, 210	16, 120	16, 040	15, 950	15, 860	15, 780	15, 700	15, 610	15, 530	15, 450
21	15, 370	15, 290	15, 210	15, 130	15, 060	14, 980	14, 900	14, 830	14, 750	14, 680
22	14, 600	14, 530	14, 460	14, 390	14, 310	14, 240	14, 170	14, 100	14, 040	13, 970
23	13, 900	13, 830	13, 770	13, 700	13, 630	13, 570	13, 500	13, 440	13, 380	13, 310
24	13, 250	13, 190	13, 130	13, 070	13, 010	12, 950	12, 890	12, 830	12, 770	12, 710
25	12, 650	12, 600	12, 540	12, 480	12, 430	12, 370	12, 310	12, 260	12, 200	12, 150
26	12, 100	12, 040	11, 990	11, 940	11, 890	11, 830	11, 780	11, 730	11, 680	11, 630
27	11, 580	11, 530	11, 480	11, 430	11, 380	11, 330	11, 290	11, 240	11, 190	11, 140
28	11, 100	11, 050	11, 000	10, 960	10, 910	10, 870	10, 820	10, 780	10, 730	10, 690
29	10, 640	10, 600	10, 560	10, 510	10, 470	10, 430	10, 390	10, 340	10, 300	10, 260
30	10, 220	10, 180	10, 140	10, 100	10, 060	10, 020	9, 980	9, 940	9, 900	9, 860
31	9, 820	9, 780	9, 740	9, 700	9, 670	9, 630	9, 590	9, 550	9, 520	9, 480
32	9, 440	9, 410	9, 370	9, 330	9, 300	9, 260	9, 230	9, 190	9, 160	9, 120
33	9, 090	9, 050	9, 020	8, 980	8, 950	8, 910	8, 880	8, 850	8, 810	8, 780
34	8, 750	8, 710	8, 680	8, 650	8, 620	8, 580	8, 550	8, 520	8, 490	8, 460
35	8, 430	8, 400	8, 360	8, 330	8, 300	8, 270	8, 240	8, 210	8, 180	8, 150
36	8, 120	8, 090	8, 060	8, 030	8, 000	7, 970	7, 940	7, 920	7, 890	7, 860
37	7, 830	7, 800	7, 770	7, 740	7, 720	7, 690	7, 660	7, 630	7, 610	7, 580
38	7, 550	7, 520	7, 500	7, 470	7, 440	7, 420	7, 390	7, 360	7, 340	7, 310
39	7, 290	7, 260	7, 230	7, 210	7, 180	7, 160	7, 130	7, 110	7, 080	7, 060
40	7, 030	7, 010	6, 980	6, 960	6, 930	6, 910	6, 880	6, 860	6, 840	6, 810
41	6, 790	6, 760	6, 740	6, 720	6, 690	6, 670	6, 650	6, 620	6, 600	6, 580
42	6, 550	6, 530	6, 510	6, 480	6, 460	6, 440	6, 420	6, 390	6, 370	6, 350
43	6, 330	6, 300	6, 280	6, 260	6, 240	6, 220	6, 200	6, 170	6, 150	6, 130
44	6, 110	6, 090	6, 070	6, 050	6, 030	6, 000	5, 980	5, 960	5, 940	5, 920
45	5, 900	5, 880	5, 860	5, 840	5, 820	5, 800	5, 780	5, 760	5, 740	5, 720
46	5, 700	5, 680	5, 660	5, 640	5, 620	5, 600	5, 580	5, 560	5, 540	5, 520
47	5, 500	5, 480	5, 460	5, 440	5, 430	5, 410	5, 390	5, 370	5, 350	5, 330

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

29 minutes after release of balloon; altitude of balloon, 5,900 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	5, 310	5, 290	5, 280	5, 260	5, 240	5, 220	5, 200	5, 180	5, 160	5, 150
49	5, 130	5, 110	5, 090	5, 070	5, 060	5, 040	5, 020	5, 000	4, 990	4, 970
50	4, 950	4, 930	4, 920	4, 900	4, 880	4, 860	4, 850	4, 830	4, 810	4, 790
51	4, 780	4, 760	4, 740	4, 730	4, 710	4, 690	4, 680	4, 660	4, 640	4, 630
52	4, 610	4, 590	4, 580	4, 560	4, 540	4, 530	4, 510	4, 490	4, 480	4, 460
53	4, 450	4, 430	4, 410	4, 400	4, 380	4, 370	4, 350	4, 330	4, 320	4, 300
54	4, 290	4, 270	4, 260	4, 240	4, 220	4, 210	4, 190	4, 180	4, 160	4, 150
55	4, 130	4, 120	4, 100	4, 090	4, 070	4, 060	4, 040	4, 020	4, 010	3, 990
56	3, 980	3, 960	3, 950	3, 930	3, 920	3, 910	3, 890	3, 880	3, 860	3, 850
57	3, 830	3, 820	3, 800	3, 790	3, 770	3, 760	3, 740	3, 730	3, 720	3, 700
58	3, 690	3, 670	3, 660	3, 640	3, 630	3, 620	3, 600	3, 590	3, 570	3, 560
59	3, 550	3, 530	3, 520	3, 500	3, 490	3, 480	3, 470	3, 450	3, 430	3, 420
60	3, 410	3, 390	3, 380	3, 370	3, 350	3, 340	3, 320	3, 310	3, 300	3, 280
61	3, 270	3, 260	3, 240	3, 230	3, 220	3, 200	3, 190	3, 180	3, 160	3, 150
62	3, 140	3, 120	3, 110	3, 100	3, 080	3, 070	3, 060	3, 040	3, 030	3, 020
63	3, 010	2, 990	2, 980	2, 970	2, 950	2, 940	2, 930	2, 920	2, 900	2, 890
64	2, 880	2, 870	2, 850	2, 840	2, 830	2, 810	2, 800	2, 790	2, 780	2, 760
65	2, 750	2, 740	2, 730	2, 710	2, 700	2, 690	2, 680	2, 660	2, 650	2, 640
66	2, 630	2, 610	2, 600	2, 590	2, 580	2, 570	2, 550	2, 540	2, 530	2, 520
67	2, 500	2, 490	2, 480	2, 470	2, 460	2, 440	2, 430	2, 420	2, 410	2, 400
68	2, 380	2, 370	2, 360	2, 350	2, 340	2, 320	2, 310	2, 300	2, 290	2, 280
69	2, 270	2, 250	2, 240	2, 230	2, 220	2, 210	2, 190	2, 180	2, 170	2, 160
70	2, 150	2, 140	2, 120	2, 110	2, 100	2, 090	2, 080	2, 070	2, 050	2, 040
71	2, 030	2, 020	2, 010	2, 000	1, 990	1, 970	1, 960	1, 950	1, 940	1, 930
72	1, 920	1, 910	1, 890	1, 880	1, 870	1, 860	1, 850	1, 840	1, 830	1, 810
73	1, 800	1, 790	1, 780	1, 770	1, 760	1, 750	1, 740	1, 730	1, 710	1, 700
74	1, 690	1, 680	1, 670	1, 660	1, 650	1, 640	1, 620	1, 610	1, 600	1, 590
75	1, 580	1, 570	1, 560	1, 550	1, 540	1, 530	1, 520	1, 500	1, 490	1, 480
76	1, 470	1, 460	1, 450	1, 440	1, 430	1, 420	1, 410	1, 390	1, 380	1, 370
77	1, 360	1, 350	1, 340	1, 330	1, 320	1, 310	1, 300	1, 290	1, 280	1, 260
78	1, 250	1, 240	1, 230	1, 220	1, 210	1, 200	1, 190	1, 180	1, 170	1, 160
79	1, 150	1, 140	1, 130	1, 120	1, 100	1, 090	1, 080	1, 070	1, 060	1, 050
80	1, 040	1, 030	1, 020	1, 010	1, 000	990	980	970	960	950
81	930	920	910	900	890	880	870	860	850	840
82	830	820	810	800	790	780	770	760	750	740
83	720	710	700	690	680	670	660	650	640	630
84	620	610	600	590	580	570	560	550	540	530
85	520	510	500	480	470	460	450	440	430	420
86	410	400	390	380	370	360	350	340	330	320
87	310	300	290	280	270	260	250	240	230	220
88	210	200	190	180	160	150	140	130	120	110
89	100	90	80	70	60	50	40	30	20	10

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

30 minutes after release of balloon; altitude of ballon, 6,100 yards

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
5	69, 720	68, 320	67, 040	65, 760	64, 540	63, 380	62, 220	61, 120	60, 050	59, 030
6	58, 040	57, 080	56, 150	55, 250	54, 380	53, 540	52, 720	51, 930	51, 160	50, 410
7	49, 680	48, 970	48, 290	47, 620	46, 970	46, 330	45, 720	45, 120	44, 530	43, 960
8	43, 400	42, 860	42, 330	41, 810	41, 310	40, 820	40, 330	39, 860	39, 400	38, 950
9	38, 510	38, 080	37, 660	37, 250	36, 850	36, 450	36, 070	35, 690	35, 320	34, 950
10	34, 590	34, 250	33, 900	33, 570	33, 240	32, 910	32, 600	32, 280	31, 980	31, 680
11	31, 380	31, 090	30, 810	30, 530	30, 250	29, 980	29, 720	29, 460	29, 200	28, 950
12	28, 700	28, 450	28, 210	27, 980	27, 740	27, 520	27, 290	27, 070	26, 850	26, 630
13	26, 420	26, 210	26, 010	25, 800	25, 610	25, 410	25, 210	25, 020	24, 830	24, 650
14	24, 470	24, 290	24, 110	23, 930	23, 760	23, 590	23, 420	23, 250	23, 090	22, 930
15	22, 770	22, 610	22, 450	22, 300	22, 150	22, 000	21, 850	21, 700	21, 560	21, 410
16	21, 270	21, 130	21, 000	20, 860	20, 730	20, 590	20, 460	20, 330	20, 200	20, 080
17	19, 950	19, 830	19, 710	19, 580	19, 470	19, 350	19, 230	19, 110	19, 000	18, 890
18	18, 770	18, 660	18, 550	18, 440	18, 340	18, 230	18, 130	18, 020	17, 920	17, 820
19	17, 720	17, 620	17, 520	17, 420	17, 320	17, 230	17, 130	17, 040	16, 940	16, 850
20	16, 760	16, 670	16, 580	16, 490	16, 400	16, 320	16, 230	16, 140	16, 060	15, 970
21	15, 890	15, 810	15, 730	15, 650	15, 570	15, 490	15, 410	15, 330	15, 250	15, 170
22	15, 100	15, 020	14, 950	14, 870	14, 800	14, 730	14, 650	14, 580	14, 510	14, 440
23	14, 370	14, 300	14, 230	14, 160	14, 100	14, 030	13, 960	13, 900	13, 830	13, 770
24	13, 700	13, 640	13, 570	13, 510	13, 450	13, 390	13, 320	13, 260	13, 200	13, 140
25	13, 080	13, 020	12, 960	12, 900	12, 850	12, 790	12, 730	12, 670	12, 620	12, 560
26	12, 510	12, 450	12, 400	12, 340	12, 290	12, 230	12, 180	12, 130	12, 080	12, 020
27	11, 970	11, 920	11, 870	11, 820	11, 770	11, 720	11, 670	11, 620	11, 570	11, 520
28	11, 470	11, 420	11, 380	11, 330	11, 280	11, 230	11, 190	11, 140	11, 100	11, 050
29	11, 000	10, 960	10, 910	10, 870	10, 830	10, 780	10, 740	10, 690	10, 650	10, 610
30	10, 570	10, 520	10, 480	10, 440	10, 400	10, 360	10, 310	10, 270	10, 230	10, 190
31	10, 150	10, 110	10, 070	10, 030	9, 990	9, 950	9, 920	9, 880	9, 840	9, 800
32	9, 760	9, 720	9, 690	9, 650	9, 610	9, 580	9, 540	9, 500	9, 470	9, 430
33	9, 390	9, 360	9, 320	9, 290	9, 250	9, 220	9, 180	9, 150	9, 110	9, 080
34	9, 040	9, 010	8, 980	8, 940	8, 910	8, 880	8, 840	8, 810	8, 780	8, 740
35	8, 710	8, 680	8, 650	8, 620	8, 580	8, 550	8, 520	8, 490	8, 460	8, 430
36	8, 400	8, 360	8, 330	8, 300	8, 270	8, 240	8, 210	8, 180	8, 150	8, 120
37	8, 090	8, 070	8, 040	8, 010	7, 980	7, 950	7, 920	7, 890	7, 860	7, 840
38	7, 810	7, 780	7, 750	7, 720	7, 700	7, 670	7, 640	7, 610	7, 590	7, 560
39	7, 530	7, 510	7, 480	7, 450	7, 430	7, 400	7, 370	7, 350	7, 320	7, 300
40	7, 270	7, 240	7, 220	7, 190	7, 170	7, 140	7, 120	7, 090	7, 070	7, 040
41	7, 020	6, 990	6, 970	6, 940	6, 920	6, 890	6, 870	6, 850	6, 820	6, 800
42	6, 770	6, 750	6, 730	6, 700	6, 680	6, 660	6, 630	6, 610	6, 590	6, 560
43	6, 540	6, 520	6, 500	6, 470	6, 450	6, 430	6, 410	6, 380	6, 360	6, 340
44	6, 320	6, 290	6, 270	6, 250	6, 230	6, 210	6, 190	6, 160	6, 140	6, 120
45	6, 100	6, 080	6, 060	6, 040	6, 020	5, 990	5, 970	5, 950	5, 930	5, 910
46	5, 890	5, 870	5, 850	5, 830	5, 810	5, 790	5, 770	5, 750	5, 730	5, 710
47	5, 690	5, 670	5, 650	5, 630	5, 610	5, 590	5, 570	5, 550	5, 530	5, 510

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HORIZONTAL COMPONENT OF DISTANCE OF PILOT BALLOON—Continued

30 minutes after release of balloon; altitude of balloon, 6,100 yards—Continued

Degrees	Elevation angle of balloon in degrees and tenths of a degree									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Horizontal component of distance of balloon in yards from observing point									
48	5,490	5,470	5,450	5,440	5,420	5,400	5,380	5,360	5,340	5,320
49	5,300	5,280	5,270	5,250	5,230	5,210	5,190	5,170	5,160	5,140
50	5,120	5,100	5,080	5,060	5,050	5,030	5,010	4,990	4,980	4,960
51	4,940	4,920	4,900	4,890	4,870	4,850	4,830	4,820	4,800	4,780
52	4,770	4,750	4,730	4,710	4,700	4,680	4,660	4,650	4,630	4,610
53	4,600	4,580	4,560	4,550	4,530	4,510	4,500	4,480	4,460	4,450
54	4,430	4,420	4,400	4,380	4,370	4,350	4,340	4,320	4,300	4,290
55	4,270	4,260	4,240	4,220	4,210	4,190	4,180	4,160	4,150	4,130
56	4,110	4,100	4,080	4,070	4,050	4,040	4,020	4,010	3,990	3,980
57	3,960	3,950	3,930	3,920	3,900	3,890	3,870	3,860	3,840	3,830
58	3,810	3,800	3,780	3,770	3,750	3,740	3,720	3,710	3,690	3,680
59	3,670	3,650	3,640	3,620	3,610	3,590	3,580	3,560	3,550	3,540
60	3,520	3,510	3,490	3,480	3,470	3,450	3,440	3,420	3,410	3,400
61	3,380	3,370	3,350	3,340	3,330	3,310	3,300	3,280	3,270	3,260
62	3,240	3,230	3,220	3,200	3,190	3,180	3,160	3,150	3,130	3,120
63	3,110	3,090	3,080	3,070	3,050	3,040	3,030	3,010	3,000	2,990
64	2,970	2,960	2,950	2,940	2,920	2,910	2,900	2,880	2,870	2,860
65	2,840	2,830	2,820	2,810	2,790	2,780	2,770	2,750	2,740	2,730
66	2,720	2,700	2,690	2,680	2,670	2,650	2,640	2,630	2,610	2,600
67	2,590	2,580	2,560	2,550	2,540	2,530	2,510	2,500	2,490	2,480
68	2,460	2,450	2,440	2,430	2,410	2,400	2,390	2,380	2,370	2,350
69	2,340	2,330	2,320	2,310	2,290	2,280	2,270	2,260	2,240	2,230
70	2,220	2,210	2,200	2,180	2,170	2,160	2,150	2,140	2,120	2,110
71	2,100	2,090	2,080	2,060	2,050	2,040	2,030	2,020	2,010	1,990
72	1,980	1,970	1,960	1,950	1,930	1,920	1,910	1,900	1,890	1,880
73	1,860	1,850	1,840	1,830	1,820	1,810	1,800	1,780	1,770	1,760
74	1,750	1,740	1,730	1,710	1,700	1,690	1,680	1,670	1,660	1,650
75	1,630	1,620	1,610	1,600	1,590	1,580	1,570	1,550	1,540	1,530
76	1,520	1,510	1,500	1,490	1,480	1,460	1,450	1,440	1,430	1,420
77	1,410	1,400	1,390	1,370	1,360	1,350	1,340	1,330	1,320	1,310
78	1,300	1,290	1,270	1,260	1,250	1,240	1,230	1,220	1,210	1,200
79	1,190	1,170	1,160	1,150	1,140	1,130	1,120	1,110	1,100	1,090
80	1,080	1,060	1,050	1,040	1,030	1,020	1,010	1,000	990	980
81	970	960	940	930	920	910	900	890	880	870
82	860	850	840	820	810	800	790	780	770	760
83	750	740	730	720	710	690	680	670	660	650
84	640	630	620	610	600	590	580	570	560	540
85	530	520	510	500	490	480	470	460	450	440
86	430	420	410	390	380	370	360	350	340	330
87	320	310	300	290	280	270	260	250	230	220
88	210	200	190	180	170	160	150	140	130	120
89	110	100	90	70	60	50	40	30	20	10

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Natural Cotangents

Degrees	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
4	14.30	13.95	13.62	13.30	13.00	12.71	12.43	12.16	11.91	11.66
5	11.43	11.20	10.99	10.78	10.58	10.39	10.20	10.02	9.845	9.677
6	9.5144	9.3572	9.2052	9.0579	8.9152	8.7769	8.6427	8.5126	8.3863	8.2636
7	8.1443	8.0285	7.9158	7.8062	7.6996	7.5958	7.4947	7.3962	7.3002	7.2066
8	7.1154	7.0264	6.9395	6.8548	6.7720	6.6912	6.6122	6.5350	6.4596	6.3859
9	6.3138	6.2432	6.1742	6.1066	6.0405	5.9758	5.9124	5.8502	5.7894	5.7297
10	5.6713	5.6140	5.5578	5.5026	5.4486	5.3955	5.3435	5.2924	5.2422	5.1929
11	5.1446	5.0970	5.0504	5.0045	4.9594	4.9152	4.8716	4.8288	4.7867	4.7453
12	4.7046	4.6646	4.6252	4.5864	4.5483	4.5107	4.4737	4.4374	4.4015	4.3662
13	4.3315	4.2972	4.2635	4.2303	4.1976	4.1653	4.1335	4.1022	4.0713	4.0408
14	4.0108	3.9812	3.9520	3.9232	3.8947	3.8667	3.8391	3.8118	3.7848	3.7583
15	3.7321	3.7062	3.6806	3.6554	3.6305	3.6059	3.5816	3.5576	3.5339	3.5105
16	3.4874	3.4646	3.4420	3.4197	3.3977	3.3759	3.3544	3.3332	3.3122	3.2914
17	3.2709	3.2506	3.2305	3.2106	3.1910	3.1716	3.1524	3.1334	3.1146	3.0961
18	3.0777	3.0595	3.0415	3.0237	3.0061	2.9887	2.9714	2.9544	2.9375	2.9208
19	2.9042	2.8878	2.8716	2.8556	2.8397	2.8239	2.8083	2.7929	2.7776	2.7625
20	2.7475	2.7326	2.7179	2.7034	2.6889	2.6746	2.6605	2.6464	2.6325	2.6187
21	2.6051	2.5916	2.5782	2.5649	2.5517	2.5386	2.5257	2.5129	2.5002	2.4876
22	2.4751	2.4627	2.4504	2.4383	2.4262	2.4142	2.4023	2.3906	2.3789	2.3673
23	2.3559	2.3445	2.3332	2.3220	2.3109	2.2998	2.2889	2.2781	2.2673	2.2566
24	2.2460	2.2355	2.2251	2.2148	2.2045	2.1943	2.1842	2.1742	2.1642	2.1543
25	2.1445	2.1348	2.1251	2.1155	2.1060	2.0965	2.0872	2.0778	2.0686	2.0594
26	2.0503	2.0413	2.0323	2.0233	2.0145	2.0057	1.9970	1.9883	1.9797	1.9711
27	1.9626	1.9542	1.9458	1.9375	1.9292	1.9210	1.9128	1.9047	1.8967	1.8887
28	1.8807	1.8728	1.8650	1.8572	1.8495	1.8418	1.8341	1.8265	1.8190	1.8115
29	1.8040	1.7966	1.7893	1.7820	1.7747	1.7675	1.7603	1.7532	1.7461	1.7391
30	1.7321	1.7251	1.7182	1.7113	1.7045	1.6977	1.6909	1.6842	1.6775	1.6709
31	1.6643	1.6577	1.6512	1.6447	1.6383	1.6319	1.6255	1.6191	1.6128	1.6066
32	1.6003	1.5941	1.5880	1.5818	1.5757	1.5697	1.5637	1.5577	1.5517	1.5458
33	1.5399	1.5340	1.5282	1.5224	1.5166	1.5108	1.5051	1.4994	1.4938	1.4882
34	1.4826	1.4770	1.4715	1.4659	1.4605	1.4550	1.4496	1.4442	1.4388	1.4335
35	1.4281	1.4229	1.4176	1.4124	1.4071	1.4019	1.3968	1.3916	1.3865	1.3814
36	1.3764	1.3713	1.3663	1.3613	1.3564	1.3514	1.3465	1.3416	1.3367	1.3319
37	1.3270	1.3222	1.3175	1.3127	1.3079	1.3032	1.2985	1.2938	1.2892	1.2846
38	1.2799	1.2753	1.2708	1.2662	1.2617	1.2572	1.2527	1.2482	1.2437	1.2393
39	1.2349	1.2305	1.2261	1.2218	1.2174	1.2131	1.2088	1.2045	1.2002	1.1960
40	1.1918	1.1875	1.1833	1.1792	1.1750	1.1708	1.1667	1.1626	1.1585	1.1544
41	1.1504	1.1463	1.1423	1.1383	1.1343	1.1303	1.1263	1.1224	1.1184	1.1145
42	1.1106	1.1067	1.1028	1.0990	1.0951	1.0913	1.0875	1.0837	1.0799	1.0761
43	1.0724	1.0686	1.0649	1.0612	1.0575	1.0538	1.0501	1.0464	1.0428	1.0392
44	1.0355	1.0319	1.0283	1.0247	1.0212	1.0176	1.0141	1.0105	1.0070	1.0035
45	1.0000	0.9965	0.9930	0.9896	0.9861	0.9827	0.9793	0.9759	0.9725	0.9691
46	0.9657	.9623	.9590	.9556	.9523	.9490	.9457	.9424	.9391	.9358
47	.9325	.9293	.9260	.9228	.9195	.9163	.9131	.9099	.9067	.9036
48	.9004	.8972	.8941	.8910	.8878	.8847	.8816	.8785	.8754	.8724
49	.8693	.8662	.8632	.8601	.8571	.8541	.8511	.8481	.8451	.8421
50	.8391	.8361	.8332	.8302	.8273	.8243	.8214	.8185	.8156	.8127
51	.8098	.8069	.8040	.8012	.7983	.7954	.7926	.7898	.7869	.7841
52	.7813	.7785	.7757	.7729	.7701	.7673	.7646	.7618	.7590	.7563
53	.7536	.7508	.7481	.7454	.7427	.7400	.7373	.7346	.7319	.7292
54	.7265	.7239	.7212	.7186	.7159	.7133	.7107	.7080	.7054	.7028
55	.7002	.6976	.6950	.6924	.6899	.6873	.6847	.6822	.6796	.6771
56	.6745	.6720	.6694	.6669	.6644	.6619	.6594	.6569	.6544	.6519
67	.6494	.6469	.6445	.6420	.6395	.6371	.6346	.6322	.6297	.6273
58	.6249	.6224	.6200	.6176	.6152	.6128	.6104	.6080	.6056	.6032
59	.6009	.5985	.5961	.5938	.5914	.5890	.5867	.5844	.5820	.5797
60	.5774	.5750	.5727	.5704	.5681	.5658	.5635	.5612	.5589	.5566
61	.5543	.5520	.5498	.5475	.5452	.5430	.5407	.5384	.5362	.5340
62	.5317	.5295	.5272	.5250	.5228	.5206	.5184	.5161	.5139	.5117
63	.5095	.5073	.5051	.5029	.5008	.4986	.4964	.4942	.4921	.4899
64	.4877	.4856	.4834	.4813	.4791	.4770	.4748	.4727	.4706	.4684
65	.4663	.4642	.4621	.4599	.4578	.4557	.4536	.4515	.4494	.4473
66	.4452	.4431	.4411	.4390	.4369	.4348	.4327	.4307	.4286	.4265
67	.4245	.4224	.4204	.4183	.4163	.4142	.4122	.4101	.4081	.4061
68	.4040	.4020	.4000	.3979	.3959	.3939	.3919	.3899	.3879	.3859
69	.3839	.3819	.3799	.3779	.3759	.3739	.3719	.3699	.3679	.3659

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NATURAL COTANGENTS—Continued

Degrees	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
70	0.3640	0.3620	0.3600	0.3581	0.3561	0.3541	0.3522	0.3502	0.3482	0.3463
71	.3443	.3424	.3404	.3385	.3365	.3346	.3327	.3307	.3288	.3269
72	.3249	.3230	.3211	.3191	.3172	.3153	.3134	.3115	.3096	.3076
73	.3057	.3038	.3019	.3000	.2981	.2962	.2943	.2924	.2905	.2886
74	.2867	.2849	.2830	.2811	.2792	.2773	.2754	.2736	.2717	.2698
75	.2679	.2661	.2642	.2623	.2605	.2586	.2568	2549	.2530	.2512
76	.2493	.2475	.2456	.2438	.2419	.2401	.2382	.2364	.2345	.2327
77	.2309	.2290	.2272	.2254	.2235	.2217	.2199	.2180	.2162	.2144
78	.2126	.2107	.2089	.2071	.2053	.2035	.2016	.1998	.1980	.1962
79	.1944	.1926	.1908	.1890	.1871	.1853	.1835	.1817	.1799	.1781
80	.1763	.1745	.1727	.1709	.1691	.1673	.1655	.1638	.1620	.1602
81	.1584	.1566	.1548	.1530	.1512	.1495	.1477	.1459	.1441	.1423
82	.1405	.1388	.1370	.1352	.1334	.1317	.1299	.1281	.1263	.1246
83	.1228	.1210	.1192	.1175	.1157	.1139	.1122	.1104	.1086	.1069
84	.1051	.1033	.1016	.0998	.0981	.0963	.0945	.0928	.0910	.0892
85	.0875	.0857	.0840	.0822	.0805	.0787	.0769	.0752	.0734	.0717
86	.0699	.0682	.0664	.0647	.0629	.0612	.0594	.0577	.0559	.0542
87	.0524	.0507	.0489	.0472	.0454	.0437	.0419	.0402	.0384	.0367
88	.0349	.0332	.0314	.0297	.0279	.0262	.0244	.0227	.0209	.0192
89	.0175	.0157	.0140	.0122	.0105	.0087	.0070	.0052	.0035	.0017

[A. G. 062.11 (3-25-41).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
Chief of Staff.

OFFICIAL:

E. S. ADAMS,
Major General,
The Adjutant General.

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