

Precision/Sniper Log Book Notes

These sheets are designed to be printed double sided, using the flip up orientation (i.e. flipped along the short edge) on 8-1/2 by 11 letter paper. My printer does this automatically but you may have to run your paper through your printer twice to accomplish the same. Alternately, you can print to individual sheets and then use a photocopier to do the double siding. I print to slightly heavy office cover stock to give my sheets a bit of weight.

The forms have small tick marks in the middle of the first page to assist in cutting the sheets in two.

Each side of each sheet is numbered (e.g. "Log 15a") to make it easier for me to find and fix individual problems on the sheets.

I've put these together in MS Word using a number of sources. These forms are provided for educational use and I provide no warrantee or guarantee of any sort.

I am new to the precision long-range precision shooting game so these forms are based on what I've read so far, figured out myself, and feel would be useful. If I'm way off or you have other suggestions, let me know and I'll improve the tools.

If I have stepped on anyone's Copyright, please accept my sincere apologies and let me know and I'll address it in the next version. Note that the Internet being what it is, I am not able to recall any previously distributed versions.

Notes pages 20 (Mil Dot Reticule, Effects of Errors, Trajectory Terms and Angle Firing) are not included in this PDF. They are only reduced sized copies of information sheets available for download from www.sniperworld.com. You can get them there if you want. If you really want the reduced sized copies, track me down with a personal mail.

I'd like to send out special thanks to the people on the Snipers Hide (www.snipershide.com). Also special thanks to Snipers World (www.sniperworld.com) where my Log Sheet 20 and a wealth of other information can be found.

I can be reached on www.snipershide.com under the username Fusilier.

Best of luck and keep up the good fight.

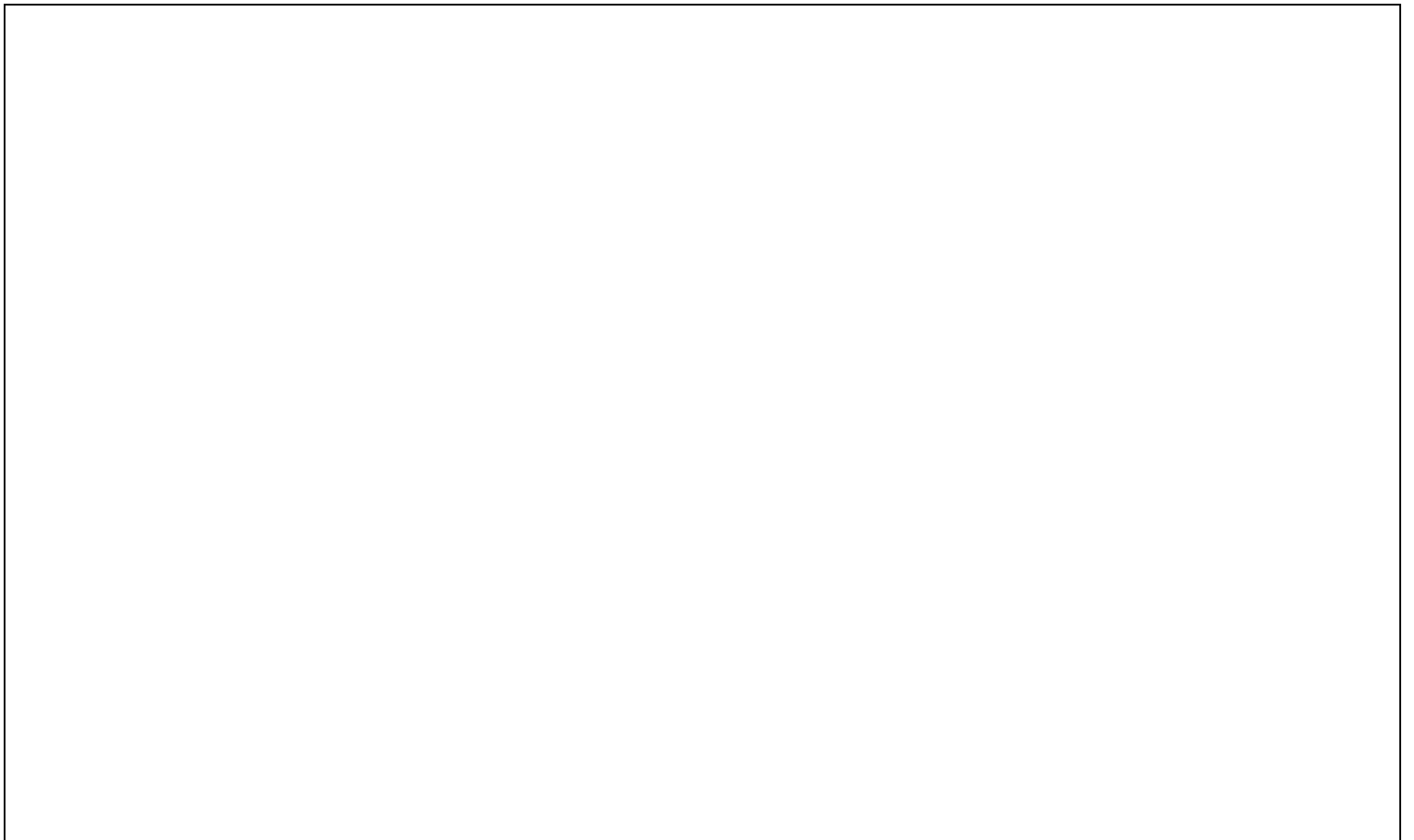
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Precision Rifle / Sniper Log Book

Name: _____

Contact: _____

Version _____



Barrel Log / Round Count

Date	Ammo	Lot	# Fired	Total	Date	Ammo	Lot	# Fired	Total
Notes							This Page		
							Previous Page		
							Total		

Barrel Log / Round Count

Date	Ammo	Lot	# Fired	Total	Date	Ammo	Lot	# Fired	Total
Notes							This Page		
							Previous Page		
							Total		

Barrel Log / Round Count

Date	Ammo	Lot	# Fired	Total	Date	Ammo	Lot	# Fired	Total
Notes							This Page		
							Previous Page		
							Total		

Barrel Log / Round Count

Date	Ammo	Lot	# Fired	Total	Date	Ammo	Lot	# Fired	Total
Notes							This Page		
							Previous Page		
							Total		

Load Data								
Load Name	Powder	Grains	Bullet	Seat Depth	Primer	Case	Group Size	Velocity
Notes								
Load Name	Powder	Grains	Bullet	Seat Depth	Primer	Case	Group Size	Velocity
Notes								
Load Name	Powder	Grains	Bullet	Seat Depth	Primer	Case	Group Size	Velocity
Notes								

Log 4a

Load Data								
Load Name	Powder	Grains	Bullet	Seat Depth	Primer	Case	Group Size	Velocity
Notes								
Load Name	Powder	Grains	Bullet	Seat Depth	Primer	Case	Group Size	Velocity
Notes								
Load Name	Powder	Grains	Bullet	Seat Depth	Primer	Case	Group Size	Velocity
Notes								

Log 4c

Load Data

Load Name	Powder	Grains	Bullet	Seat Depth	Primer	Case	Group Size	Velocity
Notes								
Load Name	Powder	Grains	Bullet	Seat Depth	Primer	Case	Group Size	Velocity
Notes								
Load Name	Powder	Grains	Bullet	Seat Depth	Primer	Case	Group Size	Velocity
Notes								

Log 4d

Load Data

Load Name	Powder	Grains	Bullet	Seat Depth	Primer	Case	Group Size	Velocity
Notes								
Load Name	Powder	Grains	Bullet	Seat Depth	Primer	Case	Group Size	Velocity
Notes								
Load Name	Powder	Grains	Bullet	Seat Depth	Primer	Case	Group Size	Velocity
Notes								

Log 4b

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Sorry for the inconvenience.

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Sorry for the inconvenience.

Field Sketch

Originator:	Date:	Sketch Name:	Orientation:
Unit:	Time:	Location/Grid:	Scale:

A large grid for field sketching, consisting of 15 columns and 15 rows. A north arrow symbol, represented by a circle with the letter 'N' inside, is located in the top right corner of the grid.

Log 11a

Field Sketch

Originator:	Date:	Sketch Name:	Orientation:
Unit:	Time:	Location/Grid:	Scale:

A large grid for field sketching, consisting of 15 columns and 15 rows. A north arrow symbol, represented by a circle with the letter 'N' inside, is located in the top right corner of the grid.

Log 11c

Field Sketch

Originator:	Date:	Sketch Name:	Orientation:
Unit:	Time:	Location/Grid:	Scale:

A large grid for field sketching, consisting of 15 columns and 15 rows. A north arrow, represented by a circle with the letter 'N' inside, is located in the top right corner of the grid.

Log 11d

Field Sketch

Originator:	Date:	Sketch Name:	Orientation:
Unit:	Time:	Location/Grid:	Scale:

A large grid for field sketching, consisting of 15 columns and 15 rows. A north arrow, represented by a circle with the letter 'N' inside, is located in the top right corner of the grid.

Log 11b

Range Card

Date:	Method:	
Location:	↑	
	Yd / M	

Distance											Distance
-----------------	--	--	--	--	--	--	--	--	--	--	-----------------

No.	Description	Direction	Elevation	Range	Ammo

Log 12a

Range Card

Date:	Method:	
Location:	↑	
	Yd / M	

Distance											Distance
-----------------	--	--	--	--	--	--	--	--	--	--	-----------------

No.	Description	Direction	Elevation	Range	Ammo

Log 12c

Range Card

Date:	Method:		
Location:	↑		
	Yd / M		

Distance												Distance
-----------------	--	--	--	--	--	--	--	--	--	--	--	-----------------

No.	Description	Direction	Elevation	Range	Ammo

Log 12d

Range Card

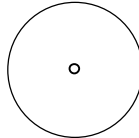
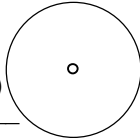
Date:	Method:		
Location:	↑		
	Yd / M		

Distance												Distance
-----------------	--	--	--	--	--	--	--	--	--	--	--	-----------------

No.	Description	Direction	Elevation	Range	Ammo

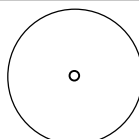
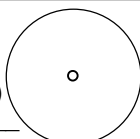
Log 12b

Unknown Distance Targets

Date		Time		Location				Rifle/Scope				Ammo				Range					
Altitude		Humidity		Baro. Press.		Temp		Mirage		Light				Wind							
Notes / Range Est Method										<input type="checkbox"/> Bright <input type="checkbox"/> Hazy <input type="checkbox"/> Overcast <input type="checkbox"/> Changing				<input type="checkbox"/> Light (3) <input type="checkbox"/> Med (7) <input type="checkbox"/> Heavy (15)							
										Target		Range		Elev.		Windage		Call		Hit	
Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct
Elev.		Windage		Call		Hit															

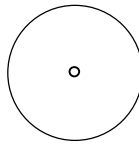
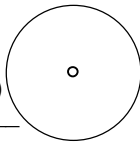
Log 13a

Unknown Distance Targets

Date		Time		Location				Rifle/Scope				Ammo				Range					
Altitude		Humidity		Baro. Press.		Temp		Mirage		Light				Wind							
Notes / Range Est Method										<input type="checkbox"/> Bright <input type="checkbox"/> Hazy <input type="checkbox"/> Overcast <input type="checkbox"/> Changing				<input type="checkbox"/> Light (3) <input type="checkbox"/> Med (7) <input type="checkbox"/> Heavy (15)							
										Target		Range		Elev.		Windage		Call		Hit	
Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct
Elev.		Windage		Call		Hit															

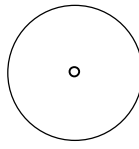
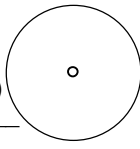
Log 13c

Unknown Distance Targets

Date		Time		Location				Rifle/Scope				Ammo				Range							
Altitude		Humidity		Baro. Press.		Temp		Mirage		Light				Wind									
Notes / Range Est Method										<input type="checkbox"/> Bright <input type="checkbox"/> Hazy <input type="checkbox"/> Overcast <input type="checkbox"/> Changing				<input type="checkbox"/> Light (3) <input type="checkbox"/> Med (7) <input type="checkbox"/> Heavy (15) <input type="checkbox"/> _____									
										Target		Range		Elev.		Windage		Call		Hit			
Initial		Correct		Initial		Correct		Initial		Correct		Initial		Correct		Initial		Correct		Initial		Correct	
Elev.		Windage		Call		Hit																	
Call		Hit																					

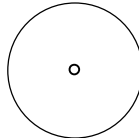
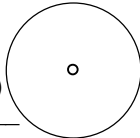
Log 13d

Unknown Distance Targets

Date		Time		Location				Rifle/Scope				Ammo				Range							
Altitude		Humidity		Baro. Press.		Temp		Mirage		Light				Wind									
Notes / Range Est Method										<input type="checkbox"/> Bright <input type="checkbox"/> Hazy <input type="checkbox"/> Overcast <input type="checkbox"/> Changing				<input type="checkbox"/> Light (3) <input type="checkbox"/> Med (7) <input type="checkbox"/> Heavy (15) <input type="checkbox"/> _____									
										Target		Range		Elev.		Windage		Call		Hit			
Initial		Correct		Initial		Correct		Initial		Correct		Initial		Correct		Initial		Correct		Initial		Correct	
Elev.		Windage		Call		Hit																	
Call		Hit																					

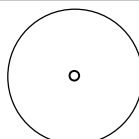
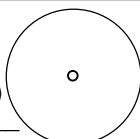
Log 13b

Unknown Distance IPSC Classic

Date		Time		Location				Rifle/Scope				Ammo		Range					
Altitude		Humidity		Baro. Press.		Temp		Mirage		Light				Wind					
Notes / Range Est Method										<input type="checkbox"/> Bright <input type="checkbox"/> Hazy <input type="checkbox"/> Overcast <input type="checkbox"/> Changing				<input type="checkbox"/> Light (3) <input type="checkbox"/> Med (7) <input type="checkbox"/> Heavy (15)					
										Target		Range		Elev.		Windage		Call	
Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct
Call		Hit		Call		Hit		Call		Hit		Call		Hit		Call		Hit	

Log 14a

Unknown Distance IPSC Classic

Date		Time		Location				Rifle/Scope				Ammo		Range					
Altitude		Humidity		Baro. Press.		Temp		Mirage		Light				Wind					
Notes / Range Est Method										<input type="checkbox"/> Bright <input type="checkbox"/> Hazy <input type="checkbox"/> Overcast <input type="checkbox"/> Changing				<input type="checkbox"/> Light (3) <input type="checkbox"/> Med (7) <input type="checkbox"/> Heavy (15)					
										Target		Range		Elev.		Windage		Call	
Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct
Call		Hit		Call		Hit		Call		Hit		Call		Hit		Call		Hit	

Log 14c

Unknown Distance IPSC Classic

Date	Time	Location				Rifle/Scope				Ammo	Range								
Altitude		Humidity		Baro. Press.		Temp		Mirage		Light				Wind					
Notes / Range Est Method										<input type="checkbox"/> Bright <input type="checkbox"/> Hazy <input type="checkbox"/> Overcast <input type="checkbox"/> Changing				<input type="checkbox"/> Light (3) <input type="checkbox"/> Med (7) <input type="checkbox"/> Heavy (15)					
										Target									
Range																			
		Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct
Elev.																			
Windage																			
Call																			
Hit																			

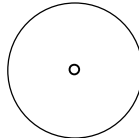
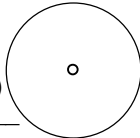
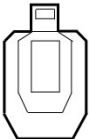
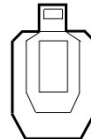
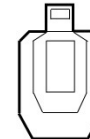
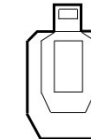
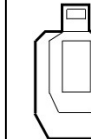
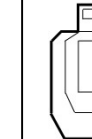
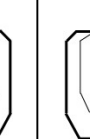

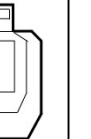
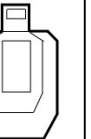
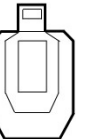
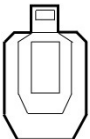
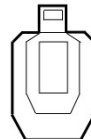
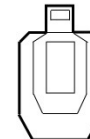
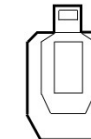
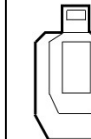
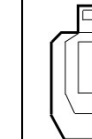
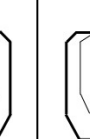

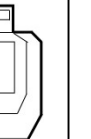
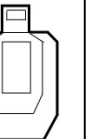
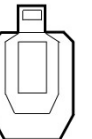
Log 14d

Unknown Distance IPSC Classic

Date	Time	Location				Rifle/Scope				Ammo	Range								
Altitude		Humidity		Baro. Press.		Temp		Mirage		Light				Wind					
Notes / Range Est Method										<input type="checkbox"/> Bright <input type="checkbox"/> Hazy <input type="checkbox"/> Overcast <input type="checkbox"/> Changing				<input type="checkbox"/> Light (3) <input type="checkbox"/> Med (7) <input type="checkbox"/> Heavy (15)					
										Target									
Range																			
		Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct
Elev.																			
Windage																			
Call																			
Hit																			

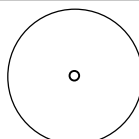
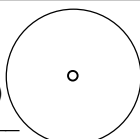
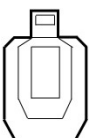

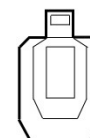

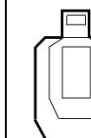
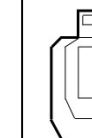


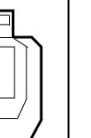
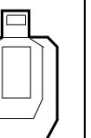
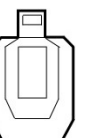
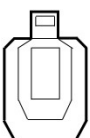



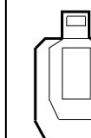
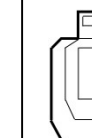


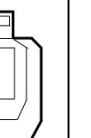
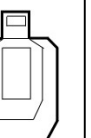
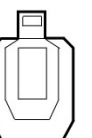
Log 14b

Unknown Distance IPSC Metric

Date		Time		Location				Rifle/Scope				Ammo		Range							
Altitude		Humidity		Baro. Press.		Temp		Mirage		Light				Wind							
Notes / Range Est Method										<input type="checkbox"/> Bright <input type="checkbox"/> Hazy <input type="checkbox"/> Overcast <input type="checkbox"/> Changing				<input type="checkbox"/> Light (3) <input type="checkbox"/> Med (7) <input type="checkbox"/> Heavy (15)							
										Target		Range		Elev.		Windage		Call		Hit	
Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct
Call		Hit																			
																					
																					

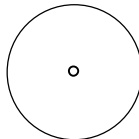
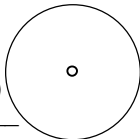
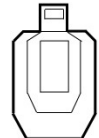
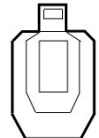
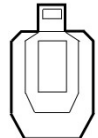
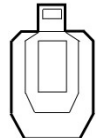
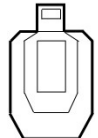
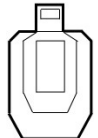
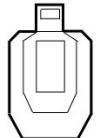
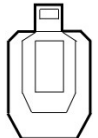
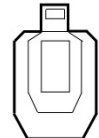
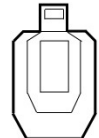
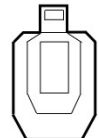
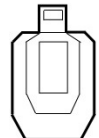
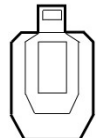
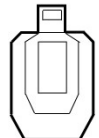
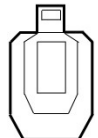
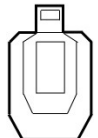
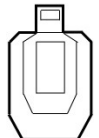
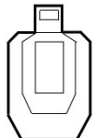
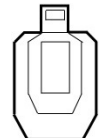
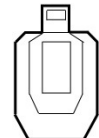
Log 15a

Unknown Distance IPSC Metric

Date		Time		Location				Rifle/Scope				Ammo		Range							
Altitude		Humidity		Baro. Press.		Temp		Mirage		Light				Wind							
Notes / Range Est Method										<input type="checkbox"/> Bright <input type="checkbox"/> Hazy <input type="checkbox"/> Overcast <input type="checkbox"/> Changing				<input type="checkbox"/> Light (3) <input type="checkbox"/> Med (7) <input type="checkbox"/> Heavy (15)							
										Target		Range		Elev.		Windage		Call		Hit	
Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct
Call		Hit																			
																					
																					

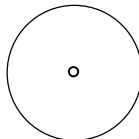
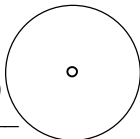
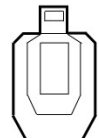
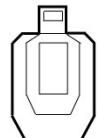
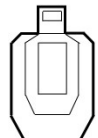

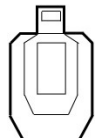
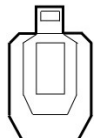
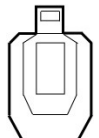
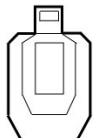
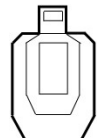

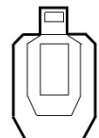

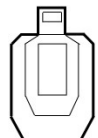
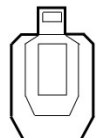
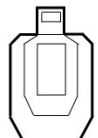
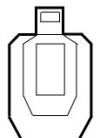
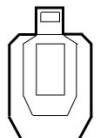
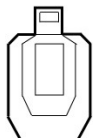

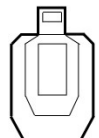
Log 15c

Unknown Distance IPSC Metric

Date		Time		Location				Rifle/Scope				Ammo		Range							
Altitude		Humidity		Baro. Press.		Temp		Mirage		Light				Wind							
Notes / Range Est Method										<input type="checkbox"/> Bright <input type="checkbox"/> Hazy <input type="checkbox"/> Overcast <input type="checkbox"/> Changing				<input type="checkbox"/> Light (3) <input type="checkbox"/> Med (7) <input type="checkbox"/> Heavy (15)							
										Target											
Range																					
		Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct		
Elev.																					
Windage																					
Call																					
Hit																					

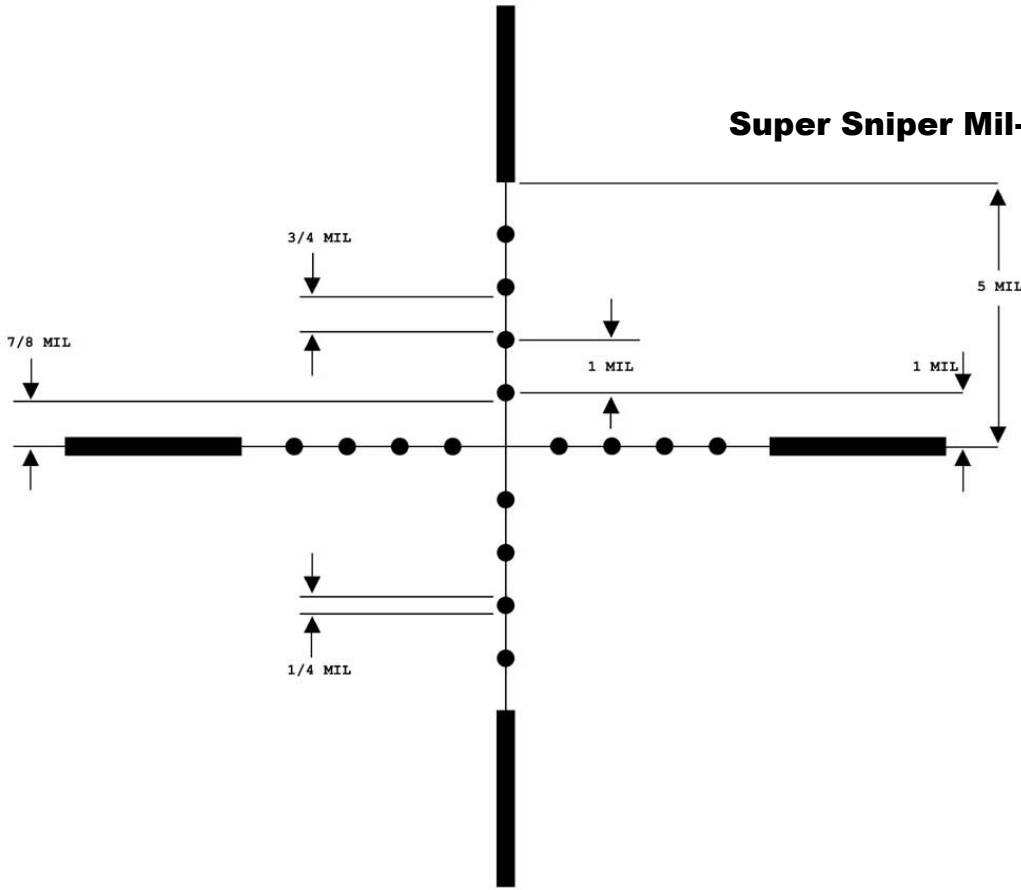
Log 15d

Unknown Distance IPSC Metric

Date		Time		Location				Rifle/Scope				Ammo		Range							
Altitude		Humidity		Baro. Press.		Temp		Mirage		Light				Wind							
Notes / Range Est Method										<input type="checkbox"/> Bright <input type="checkbox"/> Hazy <input type="checkbox"/> Overcast <input type="checkbox"/> Changing				<input type="checkbox"/> Light (3) <input type="checkbox"/> Med (7) <input type="checkbox"/> Heavy (15)							
										Target											
Range																					
		Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct	Initial	Correct		
Elev.																					
Windage																					
Call																					
Hit																					

Log 15b

Super Sniper Mil-Dot Reticle



Log 16a

MIL DOT Ranging Data

Paper

Mils	8-1/2"	11"	17"	Mils	8-1/2"	11"	17"
Mils	0.22m	0.28m	0.43m	Mils	0.22m	0.28m	0.43m
10.00	22	28	43	3.75	58	75	115
9.50	23	29	45	3.50	62	80	123
9.00	24	31	48	3.25	66	86	133
8.50	25	33	51	3.00	72	93	144
8.00	27	35	54	2.75	79	102	157
7.50	29	37	58	2.50	86	112	173
7.00	31	40	62	2.25	96	124	192
6.50	33	43	66	2.00	108	140	216
6.00	36	47	72	1.75	123	160	247
5.50	39	51	79	1.50	144	186	288
5.00	43	56	86	1.25	173	224	345
4.75	45	59	91	1.00	216	279	432
4.50	48	62	96	0.75	288	373	576
4.25	51	66	102	0.50	432	559	864
4.00	54	70	108	0.25	864	1,118	1,727
Meters				0.125	1,727		

Log 16c

MIL DOT Ranging Data

Plates / Misc

6" 12" 18" 24"					6" 12" 18" 24"				
Mils	0.15m	0.30m	0.46m	0.61m	Mils	0.15m	0.30m	0.46m	0.61m
10.00	15	30	46	61	3.75	41	81	122	163
9.50	16	32	48	64	3.50	44	87	131	174
9.00	17	34	51	68	3.25	47	94	141	188
8.50	18	36	54	72	3.00	51	102	152	203
8.00	19	38	57	76	2.75	55	111	166	222
7.50	20	41	61	81	2.50	61	122	183	244
7.00	22	44	65	87	2.25	68	135	203	271
6.50	23	47	70	94	2.00	76	152	229	305
6.00	25	51	76	102	1.75	87	174	261	348
5.50	28	55	83	111	1.50	102	203	305	406
5.00	30	61	91	122	1.25	122	244	366	488
4.75	32	64	96	128	1.00	152	305	457	610
4.50	34	68	102	135	0.75	203	406	610	813
4.25	36	72	108	143	0.50	305	610	914	1,219
4.00	38	76	114	152	0.25	610	1,219	1,829	
					0.125	1,219			

Meters

MIL DOT Ranging Data



IPSC Classic

Height Width
(.57m) (.45m)

Height Width
(.57m) (.45m)

Mils	0.57m	0.45m
10.00	57	45
9.50	60	47
9.00	63	50
8.50	67	53
8.00	71	56
7.50	76	60
7.00	81	64
6.50	88	69
6.00	95	75
5.50	104	82
5.00	114	90
4.75	120	95
4.50	127	100
4.25	134	106
4.00	143	113

Meters

Mils	0.57m	0.45m
3.75	152	120
3.50	163	129
3.25	175	138
3.00	190	150
2.75	207	164
2.50	228	180
2.25	253	200
2.00	285	225
1.75	326	257
1.50	380	300
1.25	456	360
1.00	570	450
0.75	760	600
0.50	1,140	900
0.25		1,800

0.125



IPSC Metric

Height Width Head
(29.5") (17.75") (6"x6")

Height Width Head
(29.5") (17.75") (6"x6")

Mils	0.749m	0.451m	0.152m
10.00	75	45	15
9.50	79	47	16
9.00	83	50	17
8.50	88	53	18
8.00	94	56	19
7.50	100	60	20
7.00	107	64	22
6.50	115	69	23
6.00	125	75	25
5.50	136	82	28
5.00	150	90	30
4.75	158	95	32
4.50	167	100	34
4.25	176	106	36
4.00	187	113	38

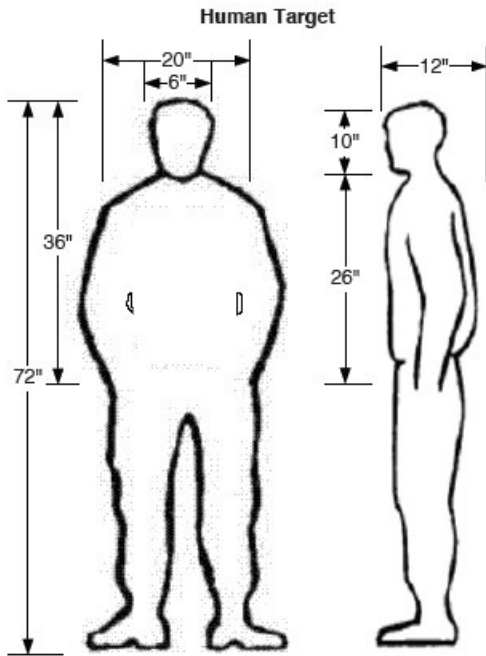
Meters

Mils	0.749m	0.451m	0.152m
3.75	200	120	41
3.50	214	129	44
3.25	231	139	47
3.00	250	150	51
2.75	272	164	55
2.50	300	180	61
2.25	333	200	68
2.00	375	225	76
1.75	428	258	87
1.50	500	301	102
1.25	599	361	122
1.00	749	451	152
0.75	999	601	203
0.50	1,499	902	305
0.25		1,803	610

0.125

1,219

MIL DOT Ranging Data



Human (Typical)				Human (Typical)			
Height Width Thick				Height Width Thick			
(72") (20") (12")				(72") (20") (12")			
Mils	1.83m	0.51m	0.305m	Mils	1.83m	0.51m	0.305m
10.00	183	51	30	3.75	488	135	81
9.50	193	53	32	3.50	523	145	87
9.00	203	56	34	3.25	563	156	94
8.50	215	60	36	3.00	610	169	102
8.00	229	64	38	2.75	665	185	111
7.50	244	68	41	2.50	732	203	122
7.00	261	73	44	2.25	813	226	135
6.50	281	78	47	2.00	914	254	152
6.00	305	85	51	1.75	1,045	290	174
5.50	333	92	55	1.50	1,219	339	203
5.00	366	102	61	1.25		406	244
4.75	385	107	64	1.00		508	305
4.50	406	113	68	0.75		677	406
4.25	430	120	72	0.50		1,016	610
4.00	457	127	76	0.25			1,219
				0.125			

Meters

Log 17a

10th MIL to Yards

MIL	MOA	Target in inches															
		2	6	10	12	16	18	20	24	26	30	36	40	60	66	69	72
2.6	8.94	21	64	107	128	171	192	214	256	278	321	385	427	641	705	737	769
2.7	9.28	21	62	103	123	165	185	206	247	267	309	370	412	617	679	710	741
2.8	9.63	20	60	99	119	159	179	198	238	258	298	357	397	595	655	685	714
2.9	9.97	19	57	96	115	153	172	192	230	249	287	345	383	575	632	661	690
3.0	10.31	19	56	93	111	148	167	185	222	241	278	333	370	556	611	639	667
3.1	10.66	18	54	90	108	143	161	179	215	233	269	323	358	538	591	618	645
3.7	12.72	15	45	75	90	120	135	150	180	195	225	270	300	450	495	518	541
3.8	13.06	15	44	73	88	117	132	146	175	190	219	263	292	439	482	504	526
3.9	13.41	14	43	71	85	114	128	142	171	185	214	256	285	427	470	491	513
4.0	13.75	14	42	69	83	111	125	139	167	181	208	250	278	417	458	479	500
4.1	14.10	14	41	68	81	108	122	136	163	176	203	244	271	407	447	467	488
4.2	14.44	13	40	66	79	106	119	132	159	172	198	238	265	397	437	456	476
4.3	14.78	13	39	65	78	103	116	129	155	168	194	233	258	388	426	446	465
4.4	15.13	13	38	63	76	101	114	126	152	164	189	227	253	379	417	436	455
4.5	15.47	12	37	62	74	99	111	123	148	160	185	222	247	370	407	426	444
4.6	15.81	12	36	60	72	97	109	121	145	157	181	217	242	362	399	417	435
4.7	16.16	12	35	59	71	95	106	118	142	154	177	213	236	355	390	408	426
4.8	16.50	12	35	58	69	93	104	116	139	150	174	208	231	347	382	399	417
4.9	16.85	11	34	57	68	91	102	113	136	147	170	204	227	340	374	391	408
5.0	17.19	11	33	56	67	89	100	111	133	144	167	200	222	333	367	383	400
5.1	17.53	11	33	54	65	87	98	109	131	142	163	196	218	327	359	376	392
5.2	17.88	11	32	53	64	85	96	107	128	139	160	192	214	321	353	369	385
5.3	18.22	10	31	52	63	84	94	105	126	136	157	189	210	314	346	362	377

Log 17c

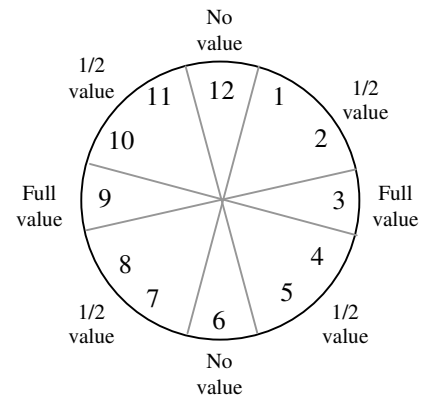
Wind Estimation

Wind Rule of Thumb

$$\frac{\text{Range (100 y)} \times \text{Wind Speed (MPH)}}{\text{Constant}} = \text{MOA}$$

(for full value wind)

<u>Range (y)</u>	<u>Constant</u>
100-500	15
600	14
700-800	13
900	12
1000	11



Estimating Wind Using Observation

0 – 3 MPH	Barely felt on face. May see drifting smoke.
3 - 5 MPH	Felt lightly on face.
5 – 8 MPH	Trees/bushes in constant motion.
8 – 12 MPH	Wind raises dust and loose paper.
12 – 15 MPH	Small trees/bushes sway.
15 – 20 MPH	Small trees/bushes in constant motion. Dust clouds form.
20 – 25 MPH	Large trees sway. Wind whistles. Spray forms on water.

Log 17d

Formulas and Conversions

Range Calculations

$$\frac{\text{Tgt Size (in Y)} \times 1000}{\text{Tgt Size (in Mils)}} = \text{Range (Y)}$$

$$\frac{\text{Tgt Size (in m)} \times 1000}{\text{Tgt Size (in Mils)}} = \text{Range (m)}$$

$$\frac{\text{Tgt Size (in inches)} \times 27.78}{\text{Tgt Size (in Mils)}} = \text{Range (Y)}$$

$$\frac{\text{Tgt Size (in inches)} \times 25.4}{\text{Tgt Size (in Mils)}} = \text{Range (m)}$$

<u>MILs to Inches at 100 yards</u>		<u>1 MIL equals:</u>		<u>MILs to CM at 100 Meters</u>		<u>1 MIL equals:</u>	
<u>MIL</u>	<u>Inches</u>	<u>Range (Yards)</u>	<u>Inches</u>	<u>MIL</u>	<u>CM</u>	<u>Range (Meters)</u>	<u>CM</u>
0.1	0.36	100	3.6	0.10	1	100	10
0.2	0.72	200	7.2	0.11	2	200	20
0.3	1.08	300	10.8	0.12	3	300	30
0.4	1.44	400	14.4	0.13	4	400	40
0.5	1.80	500	18.0	0.14	5	500	50
0.6	2.16	600	21.6	0.15	6	600	60
0.7	2.52	700	25.2	0.16	7	700	70
0.8	2.88	800	28.2	0.17	8	800	80
0.9	3.24	900	32.4	0.18	9	900	90
1.0	3.60	1000	36.0	1.0	10	1000	100

Rules of Thumb

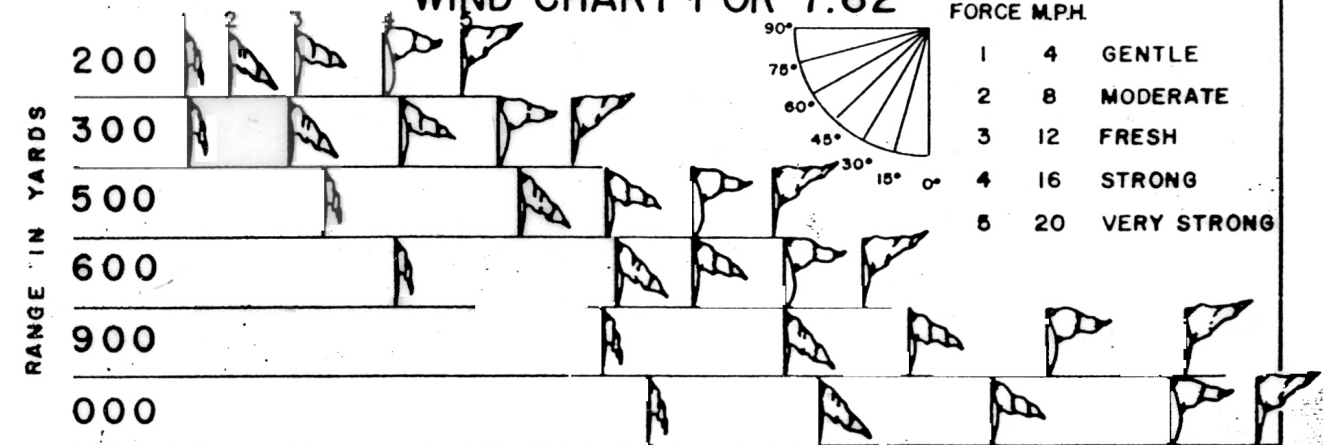
Temp ↑ = POI ↑
 R/H ↓ = POI ↑
 Atm Press ↓ = POI ↑
 Altitude ↑ = POI ↑
 20°F ↑↓ = POI ↑↓ 1 MOA
 20% RH ↑↓ = POI ↓↑ 1 MOA

1 MOA = 1.145" at 100Y

1 MIL = 3.438 MOA

Log 17b

WIND CHART FOR 7.62



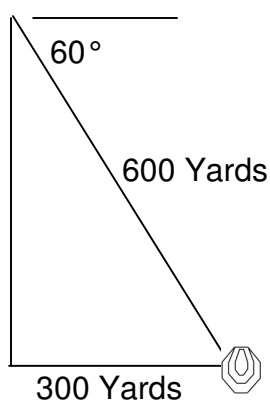
RANGE IN YARDS	200	300	500	600	900	000																						
	C L O C K	90°	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	3	3 1/2	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20
		75°	1/2	1/2	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 3/4	3 1/4	3 3/4	4 1/2	5 1/2	6 1/2	7 1/2	8 1/2	9 1/2	10 1/2	11 1/2	12	13	14	15	17	19	
		60°	1/2	1/2	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	3	3 1/2	4 1/4	5	6	7	8	9	9 1/2	10 1/2	11 1/2	12	13	14	15 1/2	17 1/2	
		45°	1/4	1/2	3/4	1	1 1/4	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	3 1/4	4	4 1/2	5 1/2	6	6 1/2	7 1/2	8	9	9 1/2	10	11	12	13 1/2	
		30°	1/4	1/2	1/2	3/4	3/4	1	1	1	1 1/4	1 1/2	1 3/4	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6	6 1/2	7	7 1/2	8	9	10
15°		0	1/4	1/4	1/4	1/2	1/2	1/2	1/2	1/2	3/4	3/4	1	1 1/4	1 1/2	2	2	2	2 1/2	2 1/2	3	3	3 1/2	4	4	4 1/2	5	

Log 18a

Uphill / Download Shooting

To determine the shooting solution for high angle shooting, you must first determine the Horizontal distance to the target, not the measured (direct) distance. The horizontal distance to the target is what your ballistic data are based on (gravity and air resistance). If you don't use the horizontal distance and just use the measured distance, your shot will be high for both uphill and downhill high angle shots.

To calculate the horizontal distance, determine the angle from horizontal to the target using a compass, slope doper, MILDOT Master, etc. In the example, the firing angle is 60° from horizontal. The measured distance to the target is 600 yards.



Range = 600 yards x COSINE (60°)
 = 600 yards x .500
 = 300 yards

Set/use scope settings for 300 yards.

Horizontal Distance to Target = Measured Distance to Target x COSINE(Angle)

Angle	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
COSINE	.996	.985	.965	.940	.906	.866	.816	.766	.707	.643	.574	.500	.423	.342	.259	.174	.087	0

Log 18c

Mover Data And Calculations

Movers

Snapshot Mil Leads 7.62mm, 175gr @ 2800 fps	100	200	300	400	500	600
1 fps				.25	.25	.25
2 fps		.25	.50	.75	.75	.75
4 fps	.50	1.50	1.75	2.00	2.00	2.00
6 fps	1.75	2.50	2.75	3.00	3.00	3.25

ToF Estimates (7.62mm, 175gr @ 2800 fps)

100 yds = .17 sec
 200 yds = .33 sec
 300 yds = .50 sec
 400 yds = .67 sec
 500 yds = .83 sec
 600 yds = 1 sec

Fps Estimates

Slow Patrol = 1 fps
 Slow Walk = 2 fps
 Normal Walk = 4 fps
 Fast Walk = 6 fps
 Bicycle = 10 fps

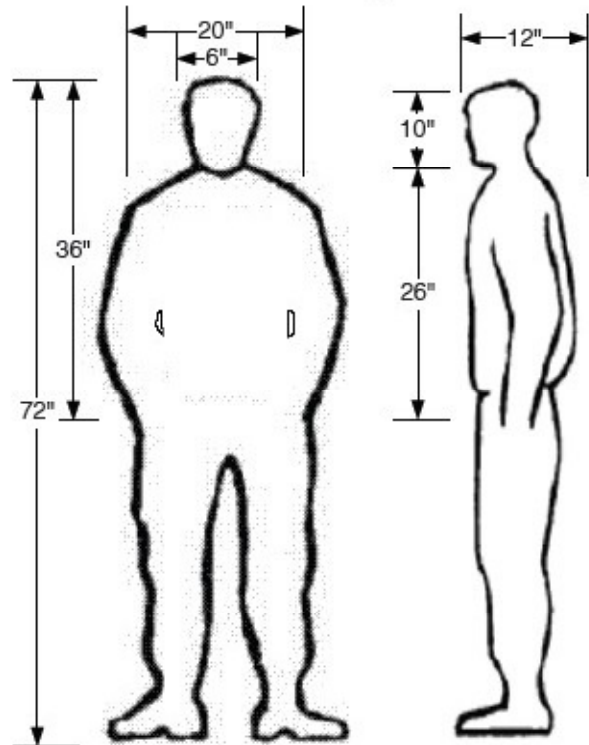
$$\frac{((\text{ToF} \times \text{Target Spd}) \times 12) - 6}{\text{Range Factor} \times 3.5} = \text{Mil Lead}$$

Example: Man walking 4fps @ 400 yards

$$\frac{((.67 \times 4) \times 12) - 6}{4 \times 3.5} = \frac{26.16}{14} = 1.87 \text{ mil lead}^*$$

* Mil Leads are from leading edge NOT center!

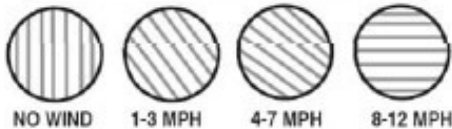
Human Target



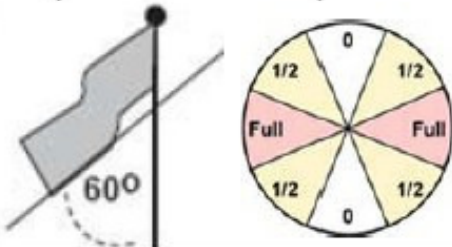
Log 18d

Formulas

WIND - MIRAGE CHART



$$\frac{\text{Angle}}{4} = \text{MPH} \quad \frac{60}{4} = 15$$



$$\frac{\text{Range (100s)} \times \text{Velocity (mph)}}{\text{Constant}} = \text{MILS}$$

Constant
(7.62mm, 175gr @ 2800 fps)

100 - 500 yds	= 53
600 yrd	= 49
700 - 800 yds	= 48
900 yds	= 42
1000 yds	= 39

Simple Method

.25 mil per
100yds
@ 10mph

Wind Effects

- 0-3 Hardly felt on face
- 3-5 Lightly felt on face
- 5-8 Tree leaves in motion
- 8-12 Raises dust and paper
- 12-15 Small trees sway
- 15-20 Larger trees sway

Yards	M/Yd	Meters
1.0936	1	0.9144
MIL	MIL/MOA	MOA
1.00	1	3.438

Humidity Effects

Humidity up = impact down
 Humidity down = impact up

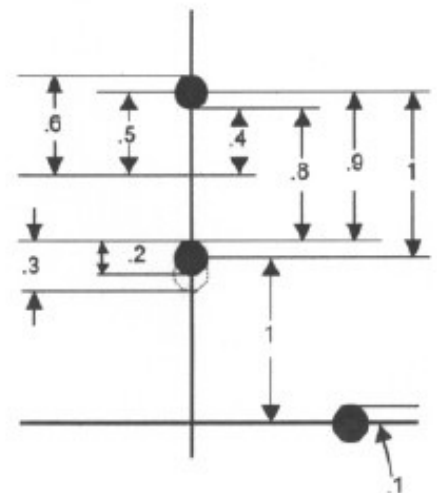
Rule of Thumb:
 20% = ~1moa affect on POI

Common Measurements

Exterior = 36" x 80"
 55gal Barrel = 12" x 15"
 5gal Bucket = 12" x 8"
 Cinder Block = 8" x 2"
 License Plate = 12" x 6"
 Door Knob = 3"

$$\frac{\text{Target Sz Inches} \times 27.77}{\text{Mil Reading of Target}} = \text{YARDS}$$

ARMY (not to scale)



Slope Dope

Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
CCS	.98	.94	.85	.75	.65	.50	.35	.20	.0

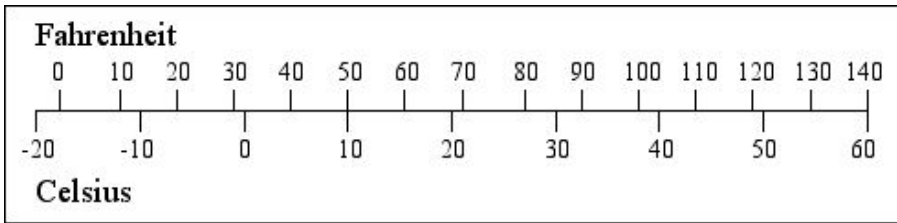
Log 18b

Metric / English Conversions

To Convert	Multiply by
Inches to mm	25.4
Inches to CM	2.54
Inches to M	0.0254
Feet to M	0.3048
Yards to M	0.9144

Rule of Thumb
Meters = 0.9 x Yards
or -10%

To Convert	Multiply by
mm to inches	0.03937
cm to inches	0.3937
M to inches	39.37
M to feet	3.2808
M to yards	1.09361



Yards	Meters
25	23
50	46
75	69
100	91
150	137
200	183
250	229
300	274
350	320
400	366
450	412
500	458
550	503
600	549
650	594
700	640
750	686
800	732
850	777
900	823
950	869
1000	914

Meters	Yards
25	27
50	55
75	82
100	109
150	164
200	219
250	229
300	328
350	383
400	437
450	492
500	547
550	601
600	656
650	711
700	766
750	820
800	875
850	930
900	984
950	1039
1000	1094

Notes

Chronograph Data

Date	Time	Location	Rifle/Scope	Temp	Range
Load:					
	String 1	String 2	String 3	String 4	String 5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
Avg					
Span					
Sigma					

Log 21a

Chronograph Data

Date	Time	Location	Rifle/Scope	Temp	Range
Load:					
	String 1	String 2	String 3	String 4	String 5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
Avg					
Span					
Sigma					

Log 21c

Chronograph Data

Date	Time	Location	Rifle/Scope	Temp	Range
Load:					
	String 1	String 2	String 3	String 4	String 5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
Avg					
Span					
Sigma					

Log 21d

Chronograph Data

Date	Time	Location	Rifle/Scope	Temp	Range
Load:					
	String 1	String 2	String 3	String 4	String 5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
Avg					
Span					
Sigma					

Log 21b

Reload Data			
Load #:	Load Name:	Date:	
Brass	Manufacturer:	Type:	Lot:
Primers	Manufacturer:	Type:	Lot:
Bullets	Manufacturer:	Type:	Lot:
Powder	Manufacturer:	Type:	Lot:
Notes			
Load #:	Load Name:	Date:	
Brass	Manufacturer:	Type:	Lot:
Primers	Manufacturer:	Type:	Lot:
Bullets	Manufacturer:	Type:	Lot:
Powder	Manufacturer:	Type:	Lot:
Notes			

Log 22a

Reload Data			
Load #:	Load Name:	Date:	
Brass	Manufacturer:	Type:	Lot:
Primers	Manufacturer:	Type:	Lot:
Bullets	Manufacturer:	Type:	Lot:
Powder	Manufacturer:	Type:	Lot:
Notes			
Load #:	Load Name:	Date:	
Brass	Manufacturer:	Type:	Lot:
Primers	Manufacturer:	Type:	Lot:
Bullets	Manufacturer:	Type:	Lot:
Powder	Manufacturer:	Type:	Lot:
Notes			

Log 22c

Reload Data			
Load #:	Load Name:	Date:	
Brass	Manufacturer:	Type:	Lot:
Primers	Manufacturer:	Type:	Lot:
Bullets	Manufacturer:	Type:	Lot:
Powder	Manufacturer:	Type:	Lot:
Notes			
Load #:	Load Name:	Date:	
Brass	Manufacturer:	Type:	Lot:
Primers	Manufacturer:	Type:	Lot:
Bullets	Manufacturer:	Type:	Lot:
Powder	Manufacturer:	Type:	Lot:
Notes			

Log 22d

Reload Data			
Load #:	Load Name:	Date:	
Brass	Manufacturer:	Type:	Lot:
Primers	Manufacturer:	Type:	Lot:
Bullets	Manufacturer:	Type:	Lot:
Powder	Manufacturer:	Type:	Lot:
Notes			
Load #:	Load Name:	Date:	
Brass	Manufacturer:	Type:	Lot:
Primers	Manufacturer:	Type:	Lot:
Bullets	Manufacturer:	Type:	Lot:
Powder	Manufacturer:	Type:	Lot:
Notes			

Log 22b