

APPENDIX C
UNITS OF MEASURE AND CONVERSION FACTORS

ENGLISH SYSTEM OF LINEAR MEASURE

12 inches	=	1 foot	
36 inches	=	1 yard	
3 feet	=	1 yard	
1,760 yards	=	1 mile statute	
2,026.8 yards	=	1 mile nautical	
5,280 feet	=	1 mile statute	
6,080.4 feet	=	1 mile nautical	
63,360 inches	=	1 mile statute	
72,963 inches	=	1 mile nautical	

METRIC SYSTEM OF LINEAR MEASURE

1 millimeter	=	0.1 centimeter	=	0.0393 inch
10 millimeters	=	1.0 centimeter	=	0.3937 inch
10 centimeters	=	1.0 decimeter	=	3.937 inches
10 decimeters	=	1.0 meter	=	39.37 inches
10 meters	=	1.0 decameter	=	32.81 feet
10 decameters	=	1.0 hectometer	=	328.1 feet
10 hectometers	=	1.0 kilometer	=	0.62 mile
10 kilometers	=	1.0 myriameter	=	6.21 miles

EQUIVALENT UNITS OF ANGULAR MEASURE

1 mil	=	1/6400 circle	=	0.05625°	=	0.0625 grad
1 grad	=	1/400 circle	=	16.0 mils	=	0°54' = 0.9°
1 degree	=	1/360 circle	=	about 17.8mils	=	about 1.1 grad

CONVERSION FACTORS

One	Inches	Feet	Yards	Statute Miles	Nautical Miles	mm
Inch.....	1	0.0833	0.0277			25.40
Foot.....	12	1	0.333			304.8
Yard.....	36	3	1	0.00056		914.4
Statute Mile.....	63,360	5,280	1,760	1	0.8684	
Nautical Mile.....	72,963	6,080	2,026	1.1516	1	
Millimeter.....	0.0394	0.0033	0.0011			1
Centimeter.....	0.3937	0.0328	0.0109			10
Decimeter.....	3.937	0.328	0.1093			1,00
Meter.....	39.37	3.2808	1.0936	0.0006	0.0005	1,000
Decameter.....	393.7	32.81	10.94	0.0062	0.0054	10,000
Hactometer.....	3,937	328.1	109.4	0.0621	0.0539	100,000
Kilometer.....	39,370	3,281	1,094	0.6214	0.5396	1,000,000
Myriameter.....	393,700	32,808	10,936	6.2137	5.3959	10,000,000

One	cm	dm	m	dkm	hm	km	mym
Inch.....	2.540	0.2540	0.0254	0.0025	0.0003		
Foot.....	30.48	3.048	0.3048	0.0305	0.0030	0.0003	
Yard.....	91.44	9.144	0.9144	0.0914	0.0091	0.0009	
Statute Mile.....	160,930	16,093	1,609	160.9	16.09	1.6093	0.1609
Nautical Mile.....	185,325	18,532	1,853	185.3	18.53	1.8532	0.1853
Millimeter.....	0.1	0.01	0.001	0.0001			
Centimeter.....	1	0.1	0.01	0.001	0.0001		
Decimeter.....	10	1	0.1	0.01	0.001	0.0001	
Meter.....	100	10	1	0.1	0.01	0.001	0.0001
Decameter.....	1000	100	10	1	0.01	0.01	0.001
Hactometer.....	10,000	1000	100	10	1	0.1	0.01
Kilometer.....	100,000	10,000	1000	100	10	1	0.1
Myriameter.....	1,000,000	100,000	10,000	1000	100	10	1

Example I

Problem: Reduce 76 centimeters to (?) inches.

$$76 \text{ cm} \times 0.3937 = 29 \text{ inches}$$

Answer: There are 29 inches in 76 centimeters.

Example II

Problem: How many feet are there in 2.74 meters?

$$\frac{2.74}{.3048} = 9 \text{ feet}$$

Answer: There are approximately 9 feet in 2.74 meters.

GROUND DISTANCE AT MAP SCALE

Scale	1 Inch Equals	1 Centimeter Equals
1:5,000	416.67 feet 127.00 meters	164.0 feet 50.00 meters
1:10,000	833.33 feet 254.00 meters	328.1 feet 100.00 meters
1:12,500	1,041.66 feet 317.00 feet	410.1 feet 125.00 meters
1:20,000	1,666.7 feet 508.00 meters	656.2 feet 200.00 meters
1:25,000	2,083.3 feet 635.00 meters	820.2 feet 250.00 meters
1:50,000	4,166.7 feet 1,270.00 meters	1,640.4 feet 500.00 meters
1:63,360	5,280.0 feet (1 mile) 1,609.30 meters	2,078.7 feet 633.60 meters
1:100,000	8,333.3 feet 2,540.00 meters	3,280.8 feet 1,000.00 meters
1:250,000	20,833.0 feet 6,350.00 meters	8,202.0 feet 2,500.00 meters
1:500,000	41,667.0 feet 12,700.00 meters	16,404.0 feet 5,000.00 meters