

APPENDIX C
UNITS OF MEASURE AND CONVERSION FACTORS

This appendix provides conversion tables for units of measure and conversion factors that are used in military operations.

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

Table C-1. English system of linear measure.

1 millimeter	=	0.1 centimeter	=	0.0393 inches
10 millimeters	=	1.0 centimeter	=	0.3937 inches
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

Table C-2. Metric system of linear 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 17.8 mils	=	about 1.1 grad

Table C-3. Equivalent units of angular measure.

ONE	INCHES	FEET	YARDS	STATUTE MILES	NAUTICLE 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	-	-	100
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
Hectometer	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	1	1	0.1	0.01	0.001	0.0001
Decameter	1,000	10	10	1	0.1	0.01	0.001
Hectometer	10,000	100	100	10	1	0.1	0.01
Kilometer	100,000	1,000	1,000	100	10	1	0.1
Myriameter	1,000,000	10,000	10,000	1000	100	10	1

Table C-4. Conversion factors.

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.

SCALE	1 INCH EQUALS	1 CENTIMETER EQUALS
1:5,000	416.67 feet	164.00 feet
	127.00 meters	50.00 meters
1:10,000	833.33 feet	328.10 feet
	254.00 meters	100.00 meters
1:12,500	1,041.66 feet	410.10 feet
	317.00 meters	125.00 meters
1:20,000	1,666.70 feet	656.20 feet
	508.00 meters	200.00 meters
1:25,000	2,083.30 feet	820.20 feet
	635.00 meters	250.00 meters
1:50,000	4,166.70 feet	1,640.40 feet
	1,270.00 meters	500.00 meters
1:63,360	5,280.00 feet	2,078.70 feet
	1,609.30 meters	633.60 meters
1:100,000	8,333.30 feet	3,280.80 feet
	2,540.00 meters	1,000.00 meters
1:250,000	20,833.00 feet	8,202.00 feet
	6,350.00 meters	2,500.00 meters
1:500,000	41,667.00 feet	16,404.00 feet
	12,700.00 meters	5,000.00 meters

Table C-5. Ground distance at map scale.