

LINEAR MEASURE

12 inches=1 foot
3 feet=1 yard
5½ yards=1 rod
40 rods=1 furlong
8 furlongs=1 mile

EQUIVALENT VALUES

Inches	Feet	Yards	Rods	Furlongs	Miles
36=	3=	1			
198=	16.5=	5.5=	1		
7,920=	660=	220=	40 =	1	
63,360=	5,280=	1,760=	320 =	8 =	1

SQUARE MEASURE

144 square inches=1 square foot
9 square feet=1 square yard
30¼ square yards=1 square rod
160 square rods=1 acre
640 acres=1 square mile

EQUIVALENT VALUES

1 square mile = 640 acres = 102,400 square rods = 3,097,600 square yards.
1 square mile=27,878,400 square feet=4,014,489,600 square inches.

CUBIC MEASURE

1,728 cubic inches = 1 cubic foot
27 cubic feet = 1 cubic yard
128 cubic feet = 1 cord
24¼ cubic feet = 1 perch
1 cubic yard = 27 cubic feet = 46,656 cubic inches

WEIGHT—AVOIRDUPOIS

437½ grains = 1 ounce
16 ounces = 1 pound
100 pounds = 1 hundredweight
2,000 pounds = 1 ton
2,240 pounds = 1 long ton
1 ton = 20 cwt = 2,000 pounds = 32,000 ounces = 14,000,000 grains
1 pound avdp = 7,000 grains

WEIGHT—TROY

24 grains = 1 pennyweight
20 pennyweights = 1 ounce
12 ounces = 1 pound
1 pound = 12 ounces = 240 pennyweights = 5,760 grains

TABLE OF MULTIPLIERS

Diameter of a circle × 3.1416 = Circumference.
Radius of a circle × 6.283185 = Circumference.
Square of the radius of a circle × 3.1416 = Area.
Square of the diameter of a circle × 0.7854 = Area.
Square of the circumference of a circle × 0.07958 = Area.
Half the circumference of a circle × half its diameter = Area.
Circumference of a circle × 0.159155 = Radius.
Square root of the area of a circle × 0.56419 = Radius.
Circumference of a circle × 0.31831 = Diameter.
Square root of the area of a circle × 1.12838 = Diameter.
Diameter of a circle × 0.866 = Side of an inscribed equilateral triangle.
Diameter of a circle × 0.7071 = Side of an inscribed square.
Circumference of a circle × 0.225 = Side of an inscribed square.
Circumference of a circle × 0.282 = Side of an equal square.

DRY MEASURE

2 pints = 1 quart
8 quarts = 1 peck
4 pecks = 1 bushel
1 bushel = 4 pecks = 32 quarts = 64 pints
U. S. bushel = 2,150.42 cu. in.
British = 2,218.19 cu. in.

LIQUID MEASURE

4 gills = 1 pint
2 pints = 1 quart
4 quarts = 1 gallon

The Imperial gallon contains 277.41 cu. in. = 0.1605 cu. ft.
1 cubic foot of water = 6.2321 Imperial gallons and weighs 62.321 lbs.
1 Imperial gallon of water weighs 10 lbs.

MEASURE OF ANGLES OR ARCS

60 seconds = 1 minute
60 minutes = 1 degree
90 degrees = 1 right angle or quadrant
360 degrees = 1 circle
1 circle = 360° = 21,600' = 1,296,000"

1 minute of arc on the earth's surface = 1 nautical mile = 1.17 times a land mile or 6,080 feet.

MARINERS' MEASURE

6 feet = 1 fathom
5,280 feet = 1 statute mile
120 fathoms = 1 cable length
6080 feet = 1 nautical mile
7½ cable lengths = 1 mile

MISCELLANEOUS

3 inches = 1 palm	18 inches = 1 cubit
4 inches = 1 hand	21.8 inches = 1 Bible cubit
9 inches = 1 span	2½ feet = 1 military pace
12 articles = 1 dozen	1 league = 3 miles
12 dozen = 1 gross	20 articles = 1 score
12 gross = 1 great gross	24 sheets = 1 quire
2 articles = 1 pair	20 quires = 1 ream

Diameter of a circle × 0.8862 = Side of an equal square.
Base of a triangle × half the altitude = Area.
Multiplying both diameters and .7854 together = Area of an ellipse.
Surface of a sphere × one-sixth of its diameter = Volume.
Circumference of a sphere × its diameter = Surface.
Square of the diameter of a sphere × 3.1416 = Surface.
Square of the circumference of a sphere × 0.3183 = Surface.
Cube of the diameter of a sphere × 0.5236 = Volume.
Cube of the circumference of a sphere × 0.016887 = Volume.
Radius of a sphere × 1.1547 = Side of an inscribed cube.
Area of its base × one-third of its altitude = Volume of a cone or pyramid, whether round, square, or triangular.
Area of one of its sides × 6 = Surface of a cube.
Altitude of trapezoid × one-half the sum of its parallel sides = Area.