

English Standard Measures

Long Measure

1 mile = 1760 yards = 5280 feet.

1 yard = 3 feet = 36 inches.

1 foot = 12 inches.

Surveyor's Measure

1 mile = 8 furlongs = 80 chains.

1 furlong = 10 chains = 220 yards.

1 chain = 4 rods = 22 yards = 66 feet = 100 links.

1 link = 7.92 inches.

Square Measure

1 square mile = 640 acres = 6400 square chains.

1 acre = 10 square chains = 4840 square yards = 43,560 square feet.

1 square chain = 16 square rods = 484 square yards = 4356 square feet.

1 square rod = 30.25 square yards = 272.25 square feet = 625 square links.

1 square yard = 9 square feet.

1 square foot = 144 square inches.

An acre is equal to a square, the side of which is 208.7 feet.

Dry Measure

1 bushel (U.S. or Winchester struck bushel) = 1.2445 cubic foot = 2150.42 cubic inches.

1 bushel = 4 pecks = 32 quarts = 64 pints.

1 peck = 8 quarts = 16 pints.

1 quart = 2 pints.

1 heaped bushel = 1 1/4 struck bushel.

1 cubic foot = 0.8036 struck bushel.

1 British Imperial bushel = 8 Imperial gallons = 1.2837 cubic foot = 2218.19 cubic inches.

Liquid Measure

1 U.S. gallon = 0.1337 cubic foot = 231 cubic inches = 4 quarts = 8 pints.

1 quart = 2 pints = 8 gills.

1 pint = 4 gills.

1 British Imperial gallon = 1.2003 U.S. gallon = 277.27 cubic inches.

1 cubic foot = 7.48 U.S. gallons.

Circular and Angular Measure

60 seconds (") = 1 minute (')

60 minutes = 1 degree (°)

360 degrees = 1 circumference (C)

57.3 degrees = 1 radian

2 π radians = 1 circumference (C)

Specific Gravity

The specific gravity of a substance is its weight as compared with the weight of an equal bulk of pure water.

For making specific gravity determinations the temperature of the water is usually taken at 62° F. when 1 cubic foot of water weighs 62.355 lbs. Water is at its greatest density at 39.20° F. or 4° Centigrade.

Temperature

The following equation will be found convenient for transforming temperature from one system to another:

Let F = degrees Fahrenheit; C = degrees Centigrade; R = degrees Reamur.

$$\frac{F-32}{180} = \frac{C}{100} = \frac{R}{80}$$

Avoirdupois or Commercial Weight

1 gross or long ton = 2240 pounds.

1 net or short ton = 2000 pounds.

1 pound = 16 ounces = 7000 grains.

1 ounce = 16 drams = 437.5 grains.

Measures of Pressure

1 pound per square inch = 144 pounds per square foot = 0.068 atmosphere = 2.042 inches of mercury at 62 degrees F. = 27.7 inches of water at 62 degrees F. = 2.31 feet of water at 62 degrees F.

1 atmosphere = 30 inches of mercury at 62 degrees F. = 14.7 pounds per square inch = 2116.3 pounds per square foot = 33.95 feet of water at 62 degrees F.

1 foot of water at 62 degrees F. = 62.355 pounds per square foot = 0.433 pound per square inch.

1 inch of mercury at 62 degrees F. = 1.132 foot of water = 13.58 inches of water = 0.491 pound per square inch.

Column of water 12 in. high, 1 in. dia. = .341 lbs.

Cubic Measure

1 cubic yard = 27 cubic feet.

1 cubic foot = 1728 cubic inches.

The following measures are also used for wood and masonry:

1 cord of wood = 4 X 4 X 8 feet = 128 cubic feet.

1 perch of masonry = 16-1/2 X 1-1/2 X 1 foot = 24-3/4 cubic feet.

Shipping Measure

For measuring entire internal capacity of a vessel: 1 register ton = 100 cubic feet.

For measurement of cargo:

1 U.S. shipping ton = 40 cubic feet = 32.143 U.S. bushels = 31.16 Imperial bushels.

British shipping ton = 42 cubic feet = 33.75 U.S. bushels = 32.72 Imperial bushels.

Troy Weight, Used for Weighing Gold and Silver

1 pound = 12 ounces = 5760 grains.

1 ounce = 20 pennyweights = 480 grains.

1 pennyweight = 24 grains.

1 carat (used in weighing diamonds) = 3.086 grains.

1 grain Troy = 1 grain avoirdupois = 1 grain apothecaries' weight.

Measure Used for Diameters and Areas of Electric Wires

1 circular inch = area of circle 1 inch in diameter = 0.7854 square inch.

1 circular inch = 1,000,000 circular mils.

1 square inch = 1.2732 circular inch = 1,273,239 circular mils.

A circular mil is the area of a circle 0.001 inch in diameter.

Board Measure

One foot board measure is a piece of wood 12 inches square by 1 inch thick, or 144 cubic inches. 1 cubic foot therefore equals 12 feet board measure.