

# Conversions & Rules of Measurement

## Weights and Measures

### COMMERCIAL WEIGHT

|                      |                 |
|----------------------|-----------------|
| 27 11/32 grains (gr) | = 1 dram (dr.)  |
| 16 drams             | = 1 ounce (oz.) |
| 16 ounces            | = 1 pound (lb.) |
| 2000 pounds          | = 1 ton (T.)    |
| 2240 pounds          | = 1 long ton    |

### DRY MEASURE

|              |                  |
|--------------|------------------|
| 2 pints (pt) | = 1 quart (qt)   |
| 8 quarts     | = 1 peck (pk)    |
| 4 pecks      | = 1 bushel (bu.) |

### LONG MEASURE

|                       |                 |
|-----------------------|-----------------|
| 12 inches (in.)       | = 1 foot (ft)   |
| 18 inches             | = 1 cubit       |
| 3 feet (36 in)        | = 1 yard (yd)   |
| 16 ½ ft. (5 ½ yds.)   | = 1 rod or pole |
| 40 poles              | = 1 furlong     |
| 320 rods (8 furlongs) | = 1 mile (mi.)  |
| 5,280 ft. (1760 yds.) | = 1 mile        |
| 69 ⅛ miles            | = 1 degree      |

### SQUARE MEASURE

|                    |                               |
|--------------------|-------------------------------|
| 144 square inches  | = 1 square foot               |
| 9 square feet      | = 1 square yard               |
| 30 ¼ square yards  | = 1 square rod, perch or pole |
| 272 ¼ square feet  | = 1 square rod, perch or pole |
| 40 square rods     | = 1 square rood               |
| 4 square roods     | = 1 acre                      |
| 43,560 square feet | = 1 acre                      |
| 640 acres          | = 1 square mile               |

### LIQUID MEASURE

|               |                          |
|---------------|--------------------------|
| 4 gills (gi.) | = 1 pint (16 fluid ozs.) |
| 2 pints       | = 1 quart                |
| 4 quarts      | = 1 gallon (gal.)        |
| 31 ½ gallons  | = 1 barrel (bbl.)        |
| 2 barrels     | = 1 hogshead             |

### CUBIC MEASURE

|                     |                    |
|---------------------|--------------------|
| 67.2 cubic inches   | = 1 dry quart      |
| 231 cubic inches    | = 1 gallon         |
| 537.6 cubic inches  | = 1 peck           |
| 1728 cubic inches   | = 1 cubic foot     |
| 2150.4 cubic inches | = 1 bushel         |
| 1 ¼ cubic feet      | = 1 bushel nearly  |
| 24 ¾ cubic feet     | = 1 perch (stone)  |
| 27 cubic feet       | = 1 cubic yard     |
| 128 cubic feet      | = 1 cord (of wood) |

## Rules of Measurement

- To find diameter of a circle, multiply circumference by .31831.
- To find circumference of a circle, multiply diameter by 3.1416.
- To find area of a circle multiply square of diameter by .7854.
- To find surface of a ball, or sphere, multiply square of diameter by 3.1416.
- To find volume of a ball, or sphere, multiple cube of diameter by .5236.
- To find area of a triangle, multiply the perpendicular height times the base and divide by two.
- To find the area of trapezoid, multiply half sum of parallel sides times perpendicular height.
- To find area of ellipse multiply long diameter times short diameter times .7854.
- To find area of a parallelogram multiply base times perpendicular height.

### RECTANGULAR BODIES=CUBIC FEET

Rectangular bodies are reduced to cubic feet or inches by multiplying the length, width, and height together. Thus a bin 8 ft. long, 5 ft. wide, and 4 ft. high contains  $8 \times 5 \times 4 = 160$  cubic feet

### CYLINDRICAL BODIES=CUBIC FEET

Cylindrical bodies are reduced to cylinder feet or inches by multiplying the square of the diameter by the depth; and they are reduced to cubic feet by multiplying the cylindrical feet by .7854. Thus a tank, diameter 5 ft. depth 4 ft., contains  $5^2 \times 4 = 100$  cylindrical feet; and  $100 \times .7854 = 78 \frac{1}{2}$  cubic feet.

### DETERMINING HEIGHT OF TALL OBJECTS

The height of tall objects such as trees and buildings may be measured by using this simple system. Set-up a stick in the ground and measure its shadow. Measure the length of the shadow of the tree, or other object. The height of the tree equals the length of the tree's shadow times the height of the stick divided by the length of the stick's shadow.