

66.14: Unit Conversion Tables

Time

1 day = 24 hours = 1440 minutes = 86400 seconds

1 hour = 60 minutes = 3600 seconds

1 year = 31557600 seconds $\approx \pi \times 10^7$ seconds

Length

1 mile = 8 furlongs = 80 chains = 320 rods = 1760 yards = 5280 feet = 1.609344 km

1 yard = 3 feet = 36 inches = 0.9144 meter

1 foot = 12 inches = 0.3048 meter

1 inch = 2.54 cm

1 nautical mile = 1852 meters = 1.15077944802354 miles

1 fathom = 6 feet

1 parsec = 3.26156376188 light-years = 206264.806245 AU = $3.08567756703 \times 10^{16}$ meters

1 ångström = 0.1 nm = 10^5 fermi = 10^{-10} meter

Mass

1 kilogram = 2.20462262184878 lb

1 pound = 16 oz = 0.45359237 kg

1 slug = 32.1740485564304 lb = 14.5939029372064 kg

1 short ton = 2000 lb

1 long ton = 2240 lb

1 metric ton = 1000 kg

Velocity

15 mph = 22 fps

1 mph = 0.44704 m/s

1 knot = 1.15077944802354 mph = 0.514444444444444 m/s

Area

1 acre = 43560 ft² = 4840 yd² = 4046.8564224 m²

1 mile² = 640 acres = 2.589988110336 km²

1 are = 100 m²

1 hectare = 10⁴ m² = 2.47105381467165 acres

Volume

1 liter = 1 dm³ = 10³ cm³ \approx 1 quart

1 m³ = 1000 liters

1 cm³ = 1 mL

1 ft³ = 1728 in³ = 7.48051948051948 gal = 28.316846592 liters

1 gallon = 231 in³ = 4 quarts = 8 pints = 16 cups = 3.785411784 liters

1 cup = 8 fl oz = 16 tablespoons = 48 teaspoons

1 tablespoon = 3 teaspoons = 4 fluidrams

1 dry gallon = $268.8025 \text{ in}^3 = 4.40488377086 \text{ liters}$

1 imperial gallon = 4.54609 liters

1 bushel = 4 pecks = 8 dry gallons

Density

$1 \text{ g}/\text{cm}^3 = 1000 \text{ kg}/\text{m}^3 = 8.34540445201933 \text{ lb}/\text{gal} = 1.043175556502416 \text{ lb}/\text{pint}$

Force

1 lb f = 4.44822161526050 newtons = 32.1740485564304 poundals

1 newton = 10^5 dynes

Energy

1 calorie = 4.1868 joules

1 BTU = 1055.05585262 joules

1 ft-lb = 1.35581794833140 joules

1 kW-hr = 3.6 MJ

1 eV = $1.602176634 \times 10^{-19}$ joules

1 joule = 10^7 ergs

Power

1 horsepower = 745.69987158227022 watts

1 statwatt = 1 abwatt = $1 \text{ erg}/\text{s} = 10^{-7} \text{ watt}$

Angle

$\text{rad} = \text{deg} \times \frac{\pi}{180}$ $\text{deg} = \text{rad} \times \frac{180}{\pi}$

$1 \text{ } \backslash \mathrm{mathrm\{deg\}} = 60 \text{ } \backslash \mathrm{operatorname\{arcmin\}} = 3600 \text{ } \backslash \mathrm{operatorname\{arcsec\}}$

Temperature

$^{\circ}\text{C} = ^{\circ}\text{F} - 32 \times \frac{5}{9}$

$^{\circ}\text{F} = (^{\circ}\text{C} \times \frac{9}{5}) + 32$

$\text{K} = ^{\circ}\text{C} + 273.15$

$^{\circ}\text{R} = ^{\circ}\text{F} + 459.67$

Pressure

1 atm = 101325 Pa = 1.01325 bar = 1013.25 millibar = 760 torr

= 760 mmHg = 29.9212598425197 inHg = 14.6959487755134 psi

= $2116.21662367394 \text{ lb}/\text{ft}^2 = 1.05810831183697 \text{ ton}/\text{ft}^2 = 1013250 \text{ dyne}/\text{cm}^2 = 1013250 \text{ barye}$

Electromagnetism

1 statcoulomb = $3.335640951981520 \times 10^{-10}$ coulomb

1 abcoulomb = 10 coulombs

1 statvolt = 299.792458 volts

1 abvolt = 10^{-8} volt

1 maxwell = 10^{-8} weber

1 gauss = 10^{-4} tesla

1 oersted = $250 / \pi$ (= 79.5774715459477) A/m

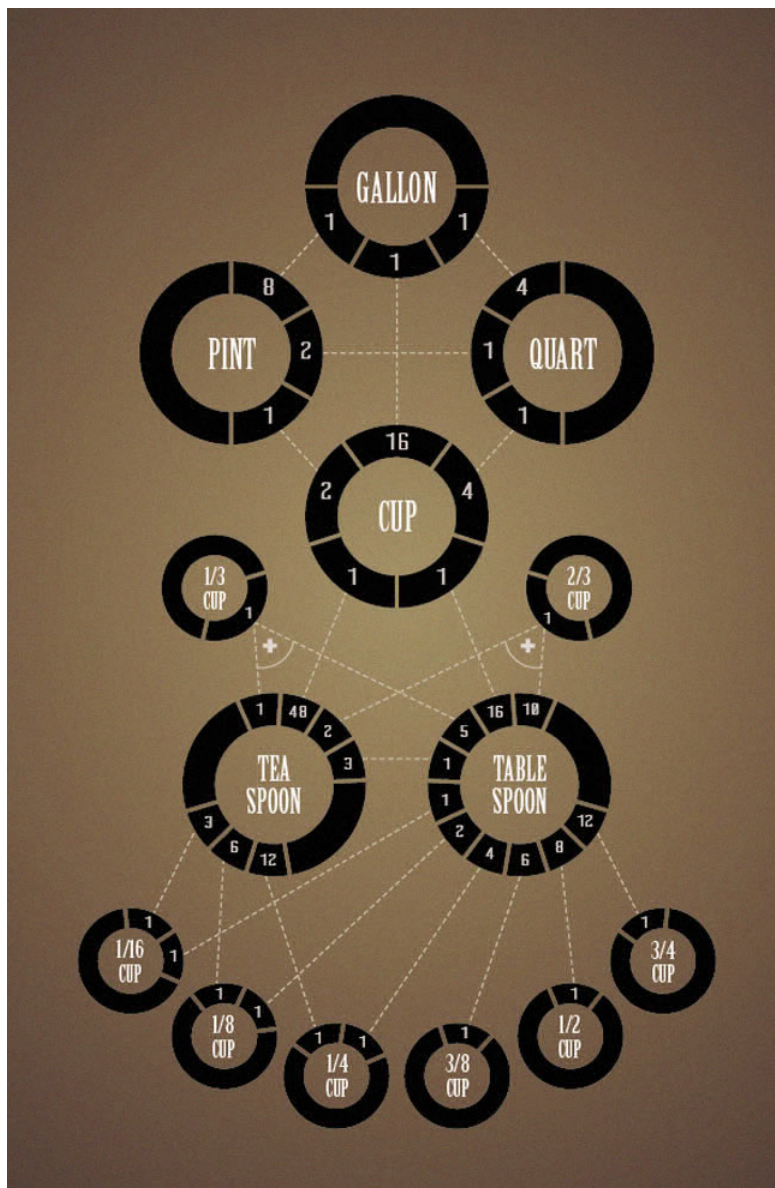


Figure 66.14.1: Conversion chart for kitchen measurements. (Credit: S.B. Lattin Design.)

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