MEASUREMENT CONVERSION FACTORS

Systéme Internationale (SI) Metric System Unit Ratio Conversions
Metric to Metric Conversions

Conversions SI Metric for Length and Distance		
1 kilometre [km]	=	1,000 metres [m]
1 meter [m]	=	100 centimetres [cm]
1 centimetre [cm]	=	10 millimetres [mm]

Conversions SI Metric for Mass		
1 tonne [t]	=	1,000 kg
1 kilogram [kg]	=	1,000 grams [g]
1 gram [g]	=	1,000 milligrams [mg]

Conversions SI Metric for Volume		
1 litre [L]	=	1,000 millilitre [mL]
1 litre [L]	=	100 centilitres [cL]
1 litre [L]	=	1,000 cc (or 1,000 cm^3)
1 millilitre [mL]	=	1 cc (or 1 cm^3)

'cc' stands for cubic centimetre which is really just cm^3. Notice also that a cube of dimensions 10cm by 10 cm by 10 cm is a litre

Conversions SI Metric for Area		
1 square metre	=	10,000 cm^2
1 hectare	=	10,000 m^2
1 cm^2	=	100 mm^2

So a square 100 m by 100 m is a hectare. Used for measuring land area.

Imperial to Imperial (and American) Conversions

Conversions Non-SI (Imperial) for Length		
1 mile [mi]	=	1,760 yards [yd]
1 yard [yd]	=	3 feet [ft]
1 mile [mi]	=	5280 ft
1 foot [ft]	=	12 inches [in]
1 yard [yd]	=	36 inches [in]

Conversions Non-SI Imperial for Mass		
1 ton [t]	=	2,000 pounds lb
1 pound [lb]	=	16 ounces oz

Note : No such thing as 2.75 pounds, it is 2 lbs 12 oz

Conversions Non-SI (Imperial) for Volume		
8 gallon [gal]	=	1 bushel
4 quarts [qt]	=	1 gallon [gal]
or 1 quart [qt]	=	0.25 gal
2 pints	=	1 quart [gt]
8 pints	=	1 gallon [gal]
20 ounces [oz]	=	1 pint

Conversions Non-SI Imperial for Volume (USA)		
1 gallon (US)	=	0.832 gallons (English)
1 gallon (US)	=	128 ounces oz (US)

Really gets confusing with two different gallons depending on your country!

Caution Ounces of weight are different from ounces of volume.

Conversions Non-SI Imperial for Area		
1 acre	=	43,560 ft^2
1 acre	=	4,840 yd^2
1 square foot [ft^2]	=	144 square inches [in^2]
1 square yard [yd^2]	=	9 ft^2
1 square mile	=	640 acres

So a square having sides of 208 feet would be an acre. An acre originally was supposed to be the amount of farmland a man could work in one day, so it depended on how strong the man was!

Converting between systems (Imperial ↔ Metric [SI])	

Conversions SI to Non-SI Length		
1 metre [m]	=	3.2808 feet [ft]
1 metre [m]	=	39.37 inches [in]
1 kilometre [km]	=	0.6214 miles [mi]
1 mile [mi]	=	1.609 km
1 inch [in]	=	2.54 cm

Conversions Non-SI Imperial – Mass		
1 kilogram kg	=	2.205 pounds lb
1 tonne	=	1.1 ton

Conversions SI to Non-SI Volume		
1 gallon (English)	=	4.546 litres
1 gallon (US)	=	3.785 litres
1 gallon (English)	=	4,546 cc^3
1 gallon (US)	=	3,785 cc^3

Conversions SI to Non-SI Area		
1 sq mile	=	259 hectares
1 sq mile	=	2,589,988 m^2
1 square metre	=	10.76 ft^2
1 square metre	=	1,550 in^2

CONVERT BY PROPORTIONS:

6 feet is how many inches??

$$\frac{12\,in}{1\,ft} = \frac{x}{6\,ft} \; ; \qquad \text{so:} \quad \frac{12*6}{1} = x \qquad \text{so:} \quad \boxed{x = 72 \text{ inches}}$$

Just like grandma's secret recipe for muffins

16 lbs is how many kg?

$$\frac{x\,kg}{16\,lb} = \frac{1\,kg}{2.205\,lb} \; ; \quad \text{so:} \quad \frac{16}{2.205} = x \qquad \text{so:} \quad \boxed{x = 7.26 \text{ kg}}$$

CONVERT BY FACTORS:

5 years is how many hours?

$$5\,yr * \frac{365\,days}{1\,yr} * \frac{24\,hr}{1\,day} = \frac{5*365*24}{1*1} = 43,800 \; hours$$

Units in top and bottom cancel until you are left with what you want! $units\ not\ want * \dfrac{units\ want}{units\ not\ want}$

16 lbs is how many kg?

$$16\,lb * \frac{1\,kg}{2.205\,lb} = \frac{16}{2.205}\,kg = 7.26\,kg$$