

## CONVERSION FACTORS

### Length

1 kilometer (km)	=	1000 meters (m)
1 meter (m)	=	100 centimeters (cm)
1 centimeters (cm)	=	$10^{-2}$ m
1 millimeter (mm)	=	$10^{-3}$ m
1 micron ( $\mu$ )	=	$10^{-6}$ m
1 millimicron (m $\mu$ )	=	$10^{-9}$ m
1 angstrom (A)	=	$10^{-10}$ m
1 inch (in.)	=	2.540 cm
1 foot (ft)	=	30.48 cm
1 mile (mi)	=	1.609 km
1 centimeters (cm)	=	0.3937 in.
1 meter (m)	=	39.37 in.
1 kilometer (km)	=	0.6214 mile

### Areas

1 square meter (m <sup>2</sup> )	=	10.76 ft <sup>2</sup>
1 square foot (ft <sup>2</sup> )	=	929 cm <sup>2</sup>
1 square mile (mi <sup>2</sup> )	=	640 acres
1 acre	=	43,560 ft <sup>2</sup>

### Volume

1 liter (l)	=	1000 cm <sup>3</sup>
	=	1.057 quart (qt)
	=	61.02 in <sup>3</sup>
	=	0.03532 ft <sup>3</sup>
1 cubic meter (m <sup>3</sup> )	=	1000 l
	=	35.32 ft <sup>3</sup>
1 cubic foot (ft <sup>3</sup> )	=	7.481 U.S.gal
	=	0.02832 m <sup>3</sup>
	=	28.32 l
1 U.S.gallon (gal)	=	231 in <sup>3</sup>
	=	3.785 l
1 British gallon	=	1.201 U.S.gallon
	=	277.4 in <sup>3</sup>



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### Mass

1 kilogram (kg)	=	2.2046 pounds (lb)
	=	0.06852 slug
1 pound (lb)	=	453.6 gm
	=	0.03108 slug
1 slug	=	32.174 lb
	=	14.59 kg

### Speed

1 km/hr	=	0.2778 m/sec
	=	0.6214 mi/hr
	=	0.9113 ft/sec
1 mi/hr	=	1.467 ft/sec
	=	1.609 km/hr
	=	0.4470 m/sec

### Density

1 gm/cm <sup>3</sup>	=	10 <sup>3</sup> kg/m <sup>3</sup>
	=	62.43 lb/ft <sup>3</sup>
	=	1.940 slug/ft <sup>3</sup>
1 lb/ft <sup>3</sup>	=	0.01602 gm/cm <sup>3</sup>
1 slug/ft <sup>3</sup>	=	0.5154 gm/cm <sup>3</sup>

### Force

1 newton (N)	=	10 <sup>5</sup> dynes
	=	0.1020 kgwt
	=	0.2248 lbwt
1 pound weight (lbwt)	=	4.448 N
	=	0.4536 kgwt
	=	32.17 poundals
1 kilogram weight (kgwt)	=	2.205 lbwt
	=	9.807 N
1 U.S.short ton	=	2000 lbwt
1 long ton	=	2240 lbwt
1 metric ton	=	2205 lbwt



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### Energy

1 joule	= 1 N m
	= $10^7$ ergs
	= 0.7376 ft lbwt
	= 0.2389 cal
	= $9.481 \times 10^{-4}$ Btu
1 ft lbwt	= 1.356 joules
	= 0.3239 cal
	= $1.285 \times 10^{-3}$ Btu
1 calorie (cal)	= 4.186 joules
	= 3.087 ft lbwt
	= $3.968 \times 10^{-3}$ Btu
1 Btu	= 778 ft lbwt
(British thermal unit)	= 1055 joules
	= 0.293 watt hr
1 kilowatt hour (kw hr)	= $3.60 \times 10^6$ joules
	= 860.0 kcal
	= 3413 Btu
1 electron volt (ev)	= $1.602 \times 10^{-19}$ joule

### Power

1 watt	= 1 joule/sec
	= $10^7$ ergs/sec
	= 0.2389 cal/sec
1 horsepower (hp)	= 550 ft lbwt/sec
	= 33,000 ft lbwt/min
	= 745.7 watts
1 kilowatt (kw)	= 1.341 hp
	= 737.6 ft lbwt/sec
	= 0.9483 Btu/sec

### Pressure

1 N/m <sup>2</sup>	= 10 dynes/cm <sup>2</sup>
	= $9.869 \times 10^{-6}$ atmosphere
	= $2.089 \times 10^{-2}$ lbwt/ft <sup>2</sup>
1 lbwt/in <sup>2</sup>	= 6895 N/m <sup>2</sup>
	= 5.171 cm mercury
	= 27.68 in. water
1 atmosphere	= $1.013 \times 10^5$ N/m <sup>2</sup>
(atm)	= $1.013 \times 10^6$ dynes/cm <sup>2</sup>
	= 14.70 lbwt/in <sup>2</sup>
	= 76 cm mercury
	= 406.8 in. water

