

# Common Chemistry Conversions

## English to Metric Conversions

(mass, length, volume, and area conversions are good to 4 significant figures)

Mass	Length	Volume	Area	Temperature
1 lb = 453.6 g	1 in = 2.540 cm	1 fl oz = 29.57 mL	1 in <sup>2</sup> = (2.54 cm) <sup>2</sup> = 6.452 cm <sup>2</sup>	$T_{\circ C} = \frac{5}{9}(T_{\circ F} - 32)$
1 oz = 28.35 g	1 ft = 30.48 cm	1 L = 1.057 qt	1 m <sup>2</sup> = (3.281 ft) <sup>2</sup> = 10.76 ft <sup>2</sup>	$T_{\circ F} = \frac{9}{5}T_{\circ C} + 32$
1 kg = 2.205 lbs	1 m = 3.281 ft	1 gal = 3.785 L		$T_K = T_{\circ C} + 273.15$
1 metric ton = 1000. kg	1 mi = 1.609 km	1 in <sup>3</sup> = (2.54 cm) <sup>3</sup> = 16.39 cm <sup>3</sup>		

## English to English Conversions. (all conversions are exact)

Mass	Length	Volume	Area
1 lb = 16 oz	1 ft = 12 in	1 cup = 8 fl oz	1 ft <sup>2</sup> = (12 in) <sup>2</sup> = 144 in <sup>2</sup>
1 ton = 2000 lbs	1 yd = 3 ft	1 pt = 2 cups	1 mi <sup>2</sup> = 640 acres
	1 mi = 5280 ft	1 qt = 2 pt	
		1 gal = 4 qt	

## Other Conversions

Energy	Pressure
1 cal = 4.184 J	1 atm = 760 mm Hg = 760 torr = 29.92 in Hg
1 J = 1 kg·m <sup>2</sup> /s <sup>2</sup>	1 atm = 14.7 psi = 101,325 Pa = 1.01325 bar
	1 Pa = 1 kg/(m·s <sup>2</sup> )

## Constants

speed of light (in a vacuum)	$c = 2.998 \times 10^8$ m/s
Planck's constant	$h = 6.626 \times 10^{-34}$ J·s
electron mass	$m_e = 9.109 \times 10^{-31}$ kg
proton mass	$m_p = 1.673 \times 10^{-27}$ kg
neutron mass	$m_n = 1.675 \times 10^{-27}$ kg
Avogadro's number	$N_A = 6.0221367 \times 10^{23}$ particles/mol
Gas Constant	$R = 0.08206$ L·atm/ (mol·K) = 8.315 J/( mol·K) = 8.315 kPa·dm <sup>3</sup> / (mol·K)
Faraday Constant	$F = 9.65 \times 10^4$ C/mol
Electronic charge	$e = 1.602 \times 10^{-19}$ C