

HANDOUT A. FACTORS FOR UNIT CONVERSIONS & SI PREFIXES

Dimension	Equivalent Values
Mass	1 kg = 1000 g = 0.001 metric ton = 2.20462 lb _m = 35.27392 oz 1 lb _m = 16 oz = 5x10 ⁻⁴ ton = 453.593 g = 0.45393 kg
Length	1 m = 100 cm = 1000 mm = 10 ⁶ microns (m) = 10 ¹⁰ angstroms (A) = 39.37 in. = 3.2808 ft = 1.0936 yd = 0.0006214 mile 1 ft = 12 in. = 1/3 yd = 0.3048 m = 30.48 cm
Volume	1 m ³ = 1000 L = 10 ⁶ cm ³ = 10 ⁶ mL = 35.3145 ft ³ = 220.83 imperial gallons = 264.17 gal = 1056.68 qt 1 ft ³ = 1728 in. ³ = 7.4805 gal = 0.028317 m ³ = 28.317 L = 28,317 cm ³
Force	1 N = 1 kg·m/s ² = 10 ⁵ dynes = 10 ⁵ g·cm/s ² = 0.22481 lbf 1 lbf = 32.174 lb _m ·ft/s ² = 4.4482 N = 4.4482x10 ⁵ dynes
Pressure	1 atm = 1.01325 x 10 ⁵ N/m ² (Pa) = 101.325 Pa = 1.01325 bar = 1.01325 x 10 ⁶ dynes/cm ² = 760 mmHg at 0 ⁰ C (torr) = 10.333 m H ₂ O at 4 ⁰ C = 14.696 lb _f /in ² (psi) = 33.9 ft H ₂ O at 4 ⁰ C = 29.921 in. Hg at 0 ⁰ C
Energy	1 J = 1 N·m = 10 ⁷ ergs = 10 ⁷ dyne·cm = 2.778x10 ⁻⁷ kW·h = 0.23901 cal = 0.7376 ft·lb _f = 9.486 x 10 ⁻⁴ Btu
Power	1 W = 1 J/s = 0.23901 cal/s = 0.7376 ft·lb _f /s = 9.486 x 10 ⁻⁴ Btu/s = 1.341x10 ⁻³ hp

Conversion Formula for Temperature

$^{\circ}\text{F} = (9/5)^{\circ}\text{C} + 32$	$^{\circ}\text{C} = (5/9) * (^{\circ}\text{F} - 32)$
$^{\circ}\text{R} = ^{\circ}\text{F} + 459.67$	$\text{K} = ^{\circ}\text{C} + 273.15$

SI Prefixes

nano (n)	micro (μ)	milli (m)	centi (cm)	deci (d)	deca (da)	hecto (h)	kilo (k)	mega (M)	giga (G)
10 ⁻⁹	10 ⁻⁶	10 ⁻³	10 ⁻²	10 ⁻¹	10 ¹	10 ²	10 ³	10 ⁶	10 ⁹