Modules in Mechanics of Materials
Unit Conversion Factors

Density	$1~\mathrm{Mg/m^3}=$	1	$\mathrm{gm/cm^3}$
	$=$	62.42	$\mathrm{lb/ft^3}$
	$=$	0.03613	$\mathrm{lb/in^3}$
	$=$	102.0	$\mathrm{N/m^3}$
Energy	$1~\mathrm{J}=$	0.2390	calorie
	$=$	9.45×10^{-4}	Btu
	$=$	10^7	erg
	$=$	0.7376	ft-lb
	$=$	6.250×10^{18}	ev
Force	$1~\mathrm{N}=$	10^5	d (dyne)
	$=$	0.2248	lbf
	$=$	0.1020	kg
	$=$	3.597	oz
	$=$	1.124×10^{-4}	ton (2000lb)
Length	$1~\mathrm{m}=$	39.37	in
	$=$	3.281	ft
	$=$	10^{10}	Å
Mass	$1~\mathrm{kg}=$	2.205	lb
	$=$	35.27	oz
	$=$	1.102×10^{-3}	ton (2000lb)
Power	$1~\mathrm{W}=$	1	J/s
	$=$	0.7378	ft-lb/s
	$=$	1.341×10^{-3}	hp
Stress	$1~\mathrm{Pa}=$	1	$\mathrm{N/m^2}$
	$=$	10	$\mathrm{d/cm^2}$
	$=$	1.449×10^{-4}	psi
	$=$	1.020×10^{-7}	$\mathrm{kg/mm^2}$
Toughness	$1~\mathrm{MPa}\sqrt{\mathrm{m}}=$	0.910	$\mathrm{ksi}\sqrt{\mathrm{in}}$

Physical constants:
Boltzman constant $k = 1.381 \times 10^{-23}$ J/K
Gas constant $R = 8.314$ J/mol-K
Avogadro constant $N_A = 6.022 \times 10^{23}$ /mol
Acceleration of gravity $g = 9.805$ m/s^2

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Fall 1999