

Formulas
(you need very few of these!!)

$$U_g = mgh, KE = \frac{1}{2}mv^2, W = \vec{F} \times \vec{x}, g = 10 \frac{m}{\text{sec}^2}$$

$$T_K = T_C + 273^\circ, T_F = \frac{9}{5}T_C + 32^\circ, T_C = \frac{5}{9}(T_F - 32^\circ), \text{eff.} = 1 - \frac{|Q_c|}{|Q_h|} = 1 - \frac{T_c}{T_h},$$

$$\% \text{eff.} = \left(1 - \frac{T_c}{T_h}\right) \times 100\%, \text{eff.} = \frac{|W|}{|Q_h|}, COP = \frac{T_h}{T_h - T_c}, T_D = \frac{70}{\text{growth.rate}}$$

1 J = 9.49×10^{-4} Btu, 1 bbl = 42 gal, 1 bbl oil = 5.8×10^6 Btu,

1 tonne = 1000kg = 2204.6 lb, 1 ton = 2000 lb, 1 cal = 4.184 J

1 ton coal = 2.66×10^7 Btu, 1 ft-lb = 1.36 J, 1 hour = 3600 seconds

1 gallon of gasoline = 1.25×10^5 Btu,

$$\frac{P}{m^2} = 6.1 \times 10^{-4} v^3, \frac{Q}{t} = \frac{kA(T_i - T_o)}{l}$$

$$R = \frac{l}{k}, R_T = R_1 + R_2 + R_3 \dots, Q = \frac{24 \times A \times (\text{degree days})}{R_T}$$