Chapter 2:
velocity:
$$v = \frac{d}{t}$$
acceleration:
$$a = \frac{v_f - v_i}{t}$$

Acceleration due to gravity (or g)
is equal to -9.80 m/s^2.

$$d = v_{ave} \bullet t \qquad\qquad v_f = v_i + a\,t$$
$$d = v_i t + \tfrac{1}{2}\,a\,t^2 \qquad\quad v_f^2 = v_i^2 + 2\,a\,d$$
$$v_{ave} = (v_i + v_f)/2$$

Force:
F = m a
Force due to gravity:
$$F = \frac{G m_1 m_2}{d^2}$$

Chapter 3
Work
$W = \text{force} \times \text{distance}$ or $W = F \times d$ or
$$W = F_{par} \times d$$

$W = mgh$ where m is mass in kg, g is 9.8 m/s^2 and h is the height of the object.

Power
$$\text{power} = \frac{\text{work}}{\text{time}} \text{ or } P = \frac{W}{t}$$

Energy
$$KE = \frac{1}{2} mv^2$$

Momentum
   p= m v

   where p is momentum, m is mass in kg, and
v is velocity in m/s

Chapter 4
Temperature
$$F = \frac{9}{5}C + 32 \text{ and } C = \frac{5}{9}(F - 32)$$

heating and cooling
when temperature is changing
$$E = m \times SH \times \Delta T$$
   specific heat of water = $\dfrac{4.184 \text{ kJ}}{\text{kg °C}}$

phase change solid to liquid
   Energy = m x L_f
heat of fusion (L_f) for H_2O is 333 kJ/kg at 0°C

phase change liquid to gas
   Energy = m x L_f
heat of vaporization for H_2O is 2260 kJ/kg at 100°C

Density
$$Density = \frac{Mass}{Volume} \text{ or } D = \frac{M}{V}$$

Pressure
$$P = \frac{F}{A}$$

Combined ideal gas law
$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2} \text{ and PV=nRT}$$

Chapter 5
Coulombs Law
$$F = K \frac{Q_1 Q_2}{R^2} = 9 \times 10^9 \frac{Q_1 Q_2}{R^2}$$
Ohm's Law
$$I = \frac{V}{R} \text{ or } V = I \cdot R$$
I is current in amps(A)
V is voltage in volts (V)
R is resistance in ohms (Ω)

power
P=I V

Transformers
$$\frac{N_1}{N_2} = \frac{V_1}{V_2}$$