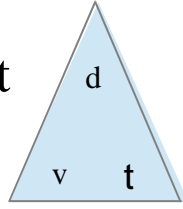


## Motion

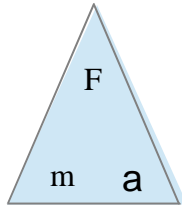
$$s = d / t \quad v = d / t$$



$$a = \Delta v / t$$

$$a = \frac{v_f - v_i}{t}$$

$$F = m a$$



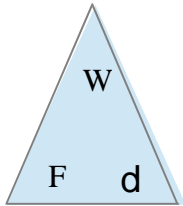
$$d = \frac{1}{2} g t^2$$

$$v_{\text{instantaneous}} = g \cdot t$$

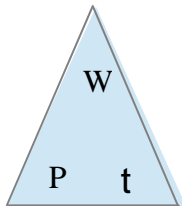
$$\text{Weight} = m g$$

$$p = m \cdot v$$

$$\text{Work} = F \cdot d$$



$$P = W / t$$



$$M.A. = F_{\text{out}} / F_{\text{in}}$$

$$M.A. = d_{\text{effort}} / d_{\text{resistance}}$$

$$\text{Eff} = W_{\text{out}} / W_{\text{in}}$$

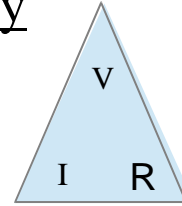
$$\text{Total Energy} = \text{PE} + \text{KE}$$

$$\text{PE} = m \cdot g \cdot h$$

$$\text{KE} = \frac{1}{2} m v^2$$

## Electricity

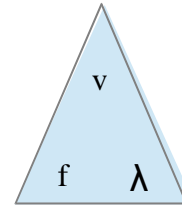
$$V = I \cdot R$$



$$P = I \cdot V$$

## Sound

$$v = f \cdot \lambda$$



## Light

$$i = r$$

$$n_i \sin \theta_i = n_r \sin \theta_r$$

$$M = h_i / h_o \text{ or } - d_i / d_o$$

## Gas Laws

$$P_1 V_1 = P_2 V_2$$

$$V_1 / T_1 = V_2 / T_2$$

## Metrics

$$\text{mm} \rightarrow \text{cm} \rightarrow \text{dm} \rightarrow \text{m/L/g} \rightarrow \text{Dm} \rightarrow \text{hm} \rightarrow \text{km}$$

$$K = ^\circ C + 273$$

$$^\circ C = K - 273$$

$$d = m/v$$

Percent error is a mathematical way of showing accuracy and precision

$$\% \text{ Error} = \frac{\text{accepted value} - \text{observed value}}{\text{accepted value}} \times 100\%$$

**“AGES”**

- A** → What is the problem **ASKING** for? [*Highlight this in the question. This is the destination.*]
- G** → What are you **GIVEN** (information)? [*Label all amounts/variables given. This is the starting point.*]
- E** → What **EQUATION** should be used? [*Write the equation/formula needed. This is the map.*]
- S** → **SOLVE** the problem by plugging in measurements with units. Does it makes SENSE?