Physics 30

Unit I - Kinematics and Dynamics - Equation Sheet

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$T = \frac{\Delta t}{N} \qquad f = \frac{N}{\Delta t} \qquad T = \frac{1}{f}$$

$$c = \sqrt{a^2 + b^2}$$

$$\sin\sigma = \frac{opposite}{hypotenuse} \qquad \cos\sigma = \frac{adjacent}{hypotenuse} \qquad \tan\sigma = \frac{opposite}{adjacent}$$

$$F_x = F\cos\sigma$$
$$F_y = F\sin\sigma$$

$$\sum F_x = F_{x1} + F_{x2} + F_{x3} + \ldots \qquad \sum F_y = F_{y1} + F_{y2} + F_{y3} + \ldots$$

$$F_R = \sqrt{\left(\sum F_x\right)^2 + \left(\sum F_y\right)^2} \qquad \sigma_R = \tan^{-1}\left[\frac{\sum F_y}{\sum F_x}\right]$$

$$\frac{\sin a}{A} = \frac{\sin b}{B} = \frac{\sin c}{C} \qquad C^2 = A^2 + B^2 - 2AB\cos c$$

$$A = \frac{1}{2}bh \qquad A = LW$$

$$v_{av} = \frac{\Delta d}{\Delta t}$$

$$\vec{v}_{av} = \frac{\Delta \vec{d}}{\Delta t} = \frac{\vec{d}_2 - \vec{d}_1}{t_2 - t_1}$$

$$\vec{a}_{av} = \frac{\Delta \vec{v}}{\Delta t} = \frac{\vec{v}_2 - \vec{v}_1}{t_2 - t_1}$$

$$\vec{v}_{av} = \frac{\vec{v}_1 + \vec{v}_2}{2}$$

$$\vec{v}_2 = \vec{v}_1 + \vec{a}\Delta t$$

$$\Delta \vec{d} = \frac{\left(\vec{v}_1 + \vec{v}_2\right)}{2}\Delta t$$

$$\Delta \vec{d} = \vec{v}_1 \Delta t + \frac{1}{2}\vec{a}\left(\Delta t\right)^2$$

$$\vec{V}_2^2 = \vec{V}_1^2 + 2\vec{a}\Delta \vec{d}$$