

Math Notes

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1 Right Triangle Properities

1.1 Pythagorean Theorem

$$a^2 + b^2 = c^2$$

1.2 Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

1.3 Trigonometric Functions

$$\begin{aligned} \sin(\theta) &= \frac{\textit{Opposite}}{\textit{Hypotenuse}} & \cos(\theta) &= \frac{\textit{Adjacent}}{\textit{Hypotenuse}} & \tan(\theta) &= \frac{\textit{Opposite}}{\textit{Adjacent}} \\ &= \frac{y}{1} = y & &= \frac{x}{1} = x & &= \frac{y}{x} \\ & & & & &= \frac{\sin(\theta)}{\cos(\theta)} \end{aligned}$$

$$\sec(\theta) = \frac{1}{\sin(\theta)} \quad \csc(\theta) = \frac{1}{\cos(\theta)} \quad \cot(\theta) = \frac{\cos(\theta)}{\sin(\theta)}$$

2 1 Dimensional Motion

$$\begin{aligned} v_f &= v + at \\ s_f &= s_i + v_i t + \frac{1}{2}at^2 \end{aligned}$$

2.1 Kinematic Equations

$$\begin{aligned} v &= v_0 + at \\ \Delta x &= \left(\frac{v + v_0}{2} \right) t \\ \Delta x &= v_0 t + \frac{1}{2}at^2 \\ v^2 &= v_0^2 + 2a\Delta x \end{aligned}$$