$$V = At$$

$$d = At^2$$

$$V = at + \cancel{V_0}$$

$$\Delta x = \frac{1}{2}at^2 + \cancel{V_0 t}$$

For Part f of your Kinematics Lab Conclusion

Average Velocity: $\bar{V}$ ~ Bar = mean value

$$\bar{V} = \frac{\text{displacement}}{\text{time}} = \frac{X_f - X_o}{t}$$

$$\frac{\text{distance: miles, km, cm}}{\text{sec, min, hr, weeks}}$$

Average Acceleration: $\bar{a}$

$$\bar{a} = \frac{V_f - V_o}{t}$$

$$\frac{\text{Speed: } \frac{\text{mile}}{\text{hr}}, \frac{\text{m}}{\text{s}}, \frac{\text{cm}}{\text{min}}}{\text{time: sec, hr, min}}$$

$$\frac{\frac{\text{Distance}}{\text{Time}}}{\frac{\text{Time}}{1}} \cdot \frac{\frac{1}{\text{Time}}}{\frac{1}{\text{Time}}} = \frac{\text{Distance}}{\text{Time}^2}$$

Example:

A Car traveling at $60 \frac{\text{miles}}{\text{hr}}$ Stops in 10 seconds:

Acceleration is: $-6 \frac{\text{miles}/\text{hr}}{\text{sec}}$

Vectors and signs for a & v

$\vec{a} = -2\ m/s^2 = -2\ m/s/s$

$\vec{v} = 10\ m/s$ → +

Acceleration tells us how much to change the velocity each second

Time	acceleration	Velocity
0	$-2\ m/s^2$	$10\ m/s$
1	$-2\ m/s^2$	$8\ m/s$
2	$-2\ m/s^2$	$6\ m/s$
⋮		
5s	$-2\ m/s^2$	$0\ m/s$
6s	$-2\ m/s^2$	$-2\ m/s$
7s	$-2\ m/s^2$	$-4\ m/s$