# 11/15/16 Acceleration

$$\text{Velocity} = \frac{\text{Displacement}}{\text{Change in Time}}$$

$$= \frac{\text{Change in Position}}{\text{Change in Time}}$$

$$\text{Acceleration} = \frac{\text{Change in Velocity}}{\text{Change in Time}}$$

Bike

$$a = \frac{40-0}{2} = 20$$

Car

$$a = \frac{20-0}{2} = 10$$

Plane

$$a = \frac{5-0}{2} = 2.5$$

$$a = \frac{v_f - v_0}{t}$$

$v_f$ = Final Velocity

$v_0$ = Initial Velocity

$t$ = Time that Passes

Direction Matters

Chipmunk running at 7.5 m/s. After 3 seconds, he is running at 9.1 m/s. What is acceleration?

1. ① $v_0 = 7.5\ m/s$, $v = 9.1\ m/s$, $t = 3s$

② $a$

③ $a = \frac{v - v_0}{t}$ 9.1 − 7.5 ÷ 3

④ $a = \frac{9.1 - 7.5}{3} = 0.53$

⑤ $a = 0.53\ m/s^2$ Forward