

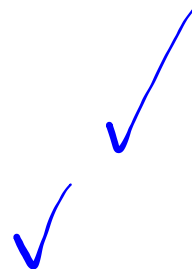
Acceleration Problems

$$a = (v_f - v_o) / t$$

~~$$v_f \boxed{-} v_o \boxed{\div} t$$~~

$$v_f \boxed{-} v_o \boxed{=} \boxed{\div} t$$

$$\boxed{(} v_f \boxed{-} v_o \boxed{)} \boxed{\div} t$$



UNITS OF ACCELERATION

$$\frac{v_f - v_o}{t}$$

$$\frac{m/s}{s}$$

$$\frac{m}{s \cdot s}$$

$$\frac{m}{s^2}$$

$$m/s/s$$

METERS PER SECOND PER SECOND

EXAMPLE: A giant sloth is slinking down the road at 9.7 meters per second to the south. It spies a distant pile of worms. LUNCH! After 14 seconds go by, the sloth is now moving at 32 meters per second to the south. What was the giant sloth's acceleration?

$$(1a) \quad v_o = 9.7 \text{ m/s} \quad t = 14 \text{ s} \quad v_f = 32 \text{ m/s}$$

$$(1b) \quad a = ?$$

$$(2) \quad a = \frac{v_f - v_o}{t} \quad a = (v_f - v_o) / t$$

$$(3) \quad a = \frac{32 - 9.7}{14}$$

$$(4) \quad a = \frac{22.3}{14} = 1.593 \text{ m/s}^2 \text{ South}$$

$$(5) \quad a = \frac{v_f - v_o}{t}$$

$$1.593 = \frac{32 - 9.7}{t}$$

$$(t) \cdot 1.593 = \frac{22.3}{t} \cdot (t)$$

$$\frac{1.593 \cdot t}{1.593} = \frac{22.3}{1.593}$$

$$(1)(t) = 13.99$$

$$t = 13.99$$

