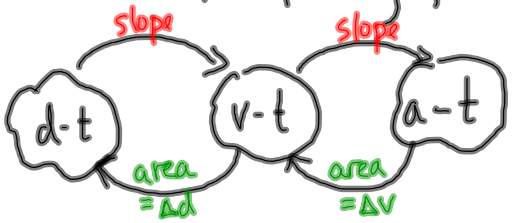
TEST - Kinematics (Oct 19)

- description $\Leftrightarrow$ d-t, v-t, a-t graphs



- find constant | average | instantaneous velocity from d-t graph
- find constant | average | instantaneous acc from v-t graph
  (slope anywhere) (slope b/w start-end) (slope of tangent at t)
- Solving problems
  - constant velocity: $v = \frac{\Delta d}{\Delta t}$
  - non constant velocity: $v_{ave} = \frac{\Delta d}{\Delta t}$
  - constant acc:

$$v_{ave} = \frac{\Delta d}{\Delta t} \Rightarrow v_{ave} = \frac{v_1 + v_2}{2}$$

$$a = \frac{\Delta v}{\Delta t} \Rightarrow \Delta v = v_2 - v_1$$

will be given * Maybe useful:

$$\Delta d = v_1 \Delta t + \frac{1}{2} a (\Delta t)^2$$

$$\Delta d = v_2 \Delta t - \frac{1}{2} a (\Delta t)^2$$

$$v_2^2 = v_1^2 + 2a\Delta d$$

What should you STUDY?!

- INV 1 to 5 and corresponding worksheets
- Chapter 2 and 3-1
- Look over notes | PP | assignment | lab
- Do LOTS of problems!

Suggested REVIEW: * p116 | 11-17 p118 | 1-16

① p120 | 38, 39, 42-45

② Calculator Pad | Kinematics → You should be able

pp189

Michael (acc)

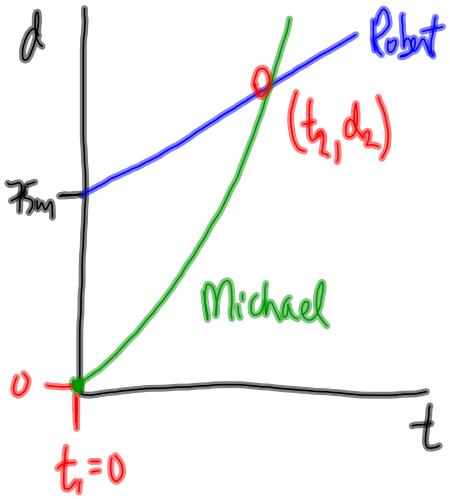
$a = 0.15 m/s^2$

$v_1 = 3.8 m/s$

Robert (const. v)

$v = 4.2 m/s$

$d_1 = +75 m$



Robert (constant velocity)

$$v = \frac{\Delta d}{\Delta t}$$

$$\Delta d = v \Delta t$$

$$d_2 - 75m = (4.2 m/s)(t_2 - 0)$$

$$d_2 - 75m = (4.2 m/s) t_2$$

$$d_2 = (4.2 m/s) t_2 + 75m$$

$(y = mx + b)$

Michael (constant acc.)

$$\Delta d = v_1 \Delta t + \frac{1}{2} a (\Delta t)^2$$

$$d_2 = (3.8 m/s) t_2 + \frac{1}{2} (0.15 m/s^2) t_2^2$$

$-4.2 t_2$ $\quad -4.2 t_2$

$$4.2 t_2 + 75 = 3.8 t_2 + 0.075 t_2^2$$

$$0 = 0.075 t_2^2 - 0.4 t_2 - 75$$

you could solve by graphing

you cannot solve algebraically unless you have Math 12