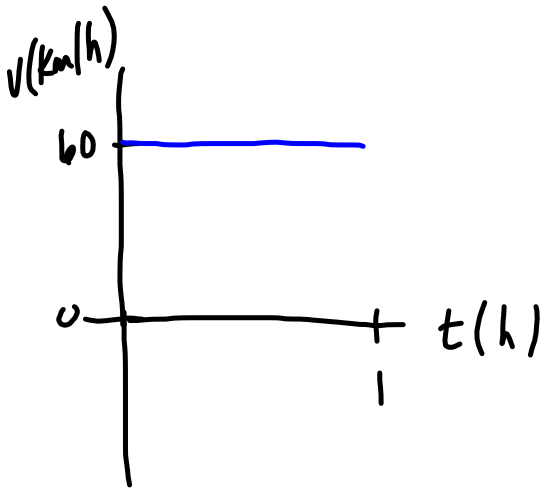
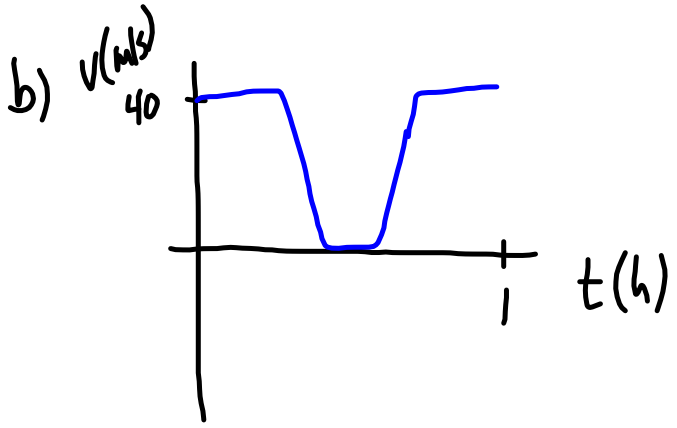
INV3

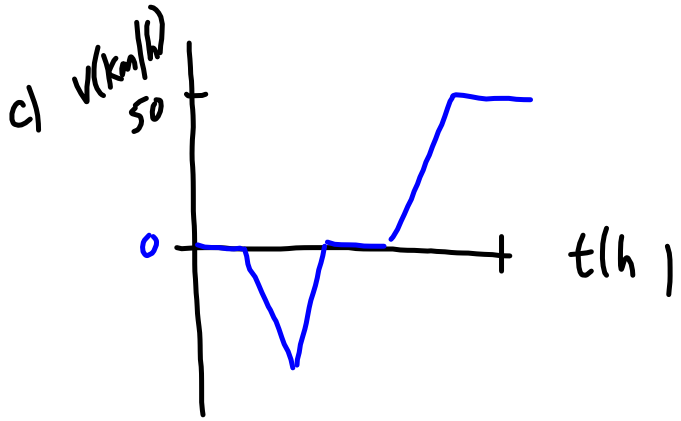
3. a)



b)



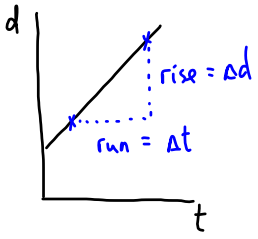
c)



Position-Time Graphs + Velocity

The slope on the position-time graph tells you how fast the object is moving and the direction that it travels (i.e. velocity)

Consider an object travelling at constant (uniform) velocity:



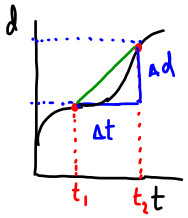
$\text{Slope} = \frac{\text{rise}}{\text{run}}$

$\text{Slope} = \frac{\Delta d}{\Delta t}$

from yesterday's demo, we know slope (d-t) = velocity

$$\vec{V} = \frac{\Delta \vec{d}}{\Delta t}$$

What happens if the velocity is not constant?

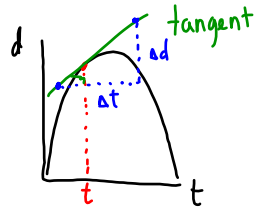


$\text{Slope} = \frac{\text{rise}}{\text{run}}$

$\text{Slope} = \frac{\Delta d}{\Delta t}$

$$\vec{V}_{ave} = \frac{\Delta \vec{d}}{\Delta t}$$

Find the slope of the line joining the points at t_1 and t_2.



$\text{Slope} = \frac{\text{rise}}{\text{run}}$

$\text{Slope} = \frac{\Delta d}{\Delta t}$

$$\vec{V}_{inst} = \frac{\Delta \vec{d}}{\Delta t}$$

Slope of the tangent drawn at time t_1 gives the instantaneous velocity.

* Since you don't have any Calculus, you can only draw a tangent by hand OR use technology