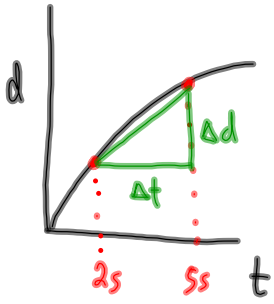
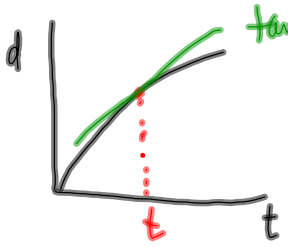
Finding Instantaneous/Average Velocity

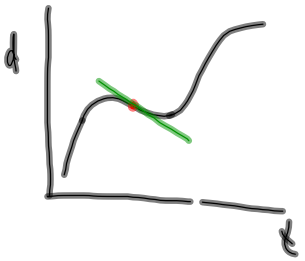


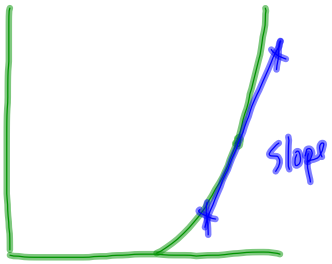
$V_{ave} = \frac{\Delta d}{\Delta t}$ (slope of the line that connects the two points on your graph)

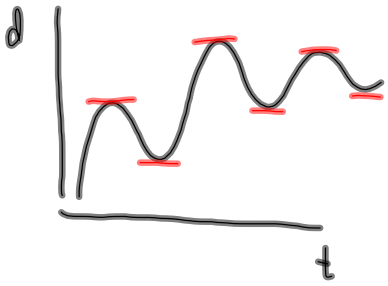


tangent => slope

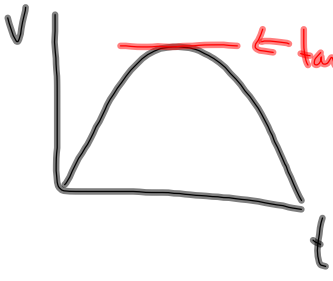
$V_{instant} = \frac{\Delta d}{\Delta t}$ (slope of tangent)





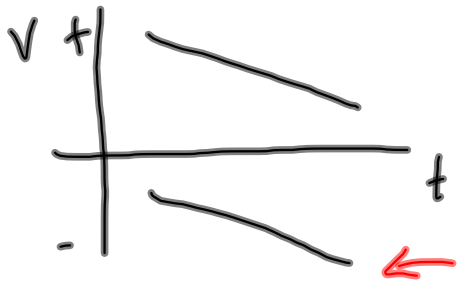


← the tangents here show v = 0 (occurs when the object changes dir)

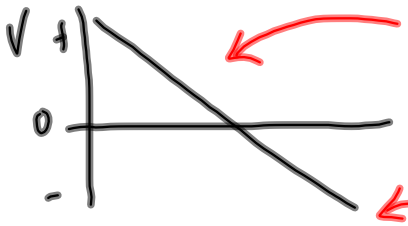


← tangent shows (a = 0)

(occurs when the object changes from speeding up to slowing down)



← moving towards



← away + slowing down steadily

← toward + speeding up steadily

4. $a = \frac{\Delta V}{\Delta t} \Rightarrow 15 m/s^2$

5. $a = \frac{\Delta V}{\Delta t}$

$a\Delta t = \Delta V$

$\Delta t = \frac{\Delta V}{a}$

$\Delta t = \frac{V_2 - V_1}{a}$ (28, 0, 5.5)

$\Delta t = 5.1 s$

c) $a = \frac{\Delta V}{\Delta t}$

$a = \frac{V_f - V_i}{\Delta t}$

$a\Delta t = V_f - V_i$

$V_i + a\Delta t = V_f$

$V_f = 8 m/s$

2. 8.4×10^4 J released.

3. $Q = mc\Delta T$

$$c = \frac{Q}{(m\Delta T)}$$

$$c = 3\ \frac{J}{g^\circ C}$$

2.59856...

4. $Q = m\Delta H_{fus}$

$Q = 1.66 \times 10^4$ J

5.