Review

Constant Velocity: $v = \frac{\Delta d}{\Delta t}$

Constant Acceleration: $v_{ave} = \frac{\Delta d}{\Delta t}$ $\left(v_{ave} = \frac{v_1 + v_2}{2}\right)$

$a = \frac{\Delta v}{\Delta t}$ $\left(\Delta v = v_2 - v_1\right)$

maybe useful:

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

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

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

5. $v_1 = 200\ km/h$

$a = 5.0\ km/h/s$

$\Delta t = 1.0\ min$

$v_2 = ?$

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

$m \cdot s^{-2}$

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

$$a\Delta t = v_2 - v_1$$

$$v_2 = v_1 + a\Delta t$$

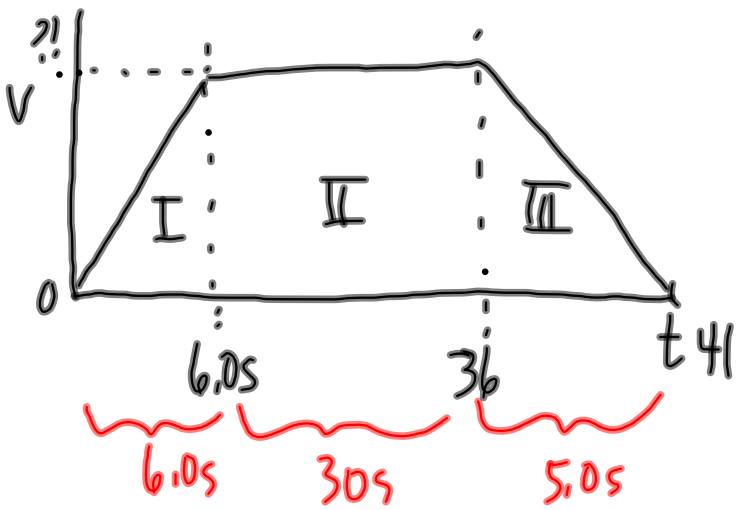
$$v_2 = 200\ km/h + (5.0\ km/h/s)(60\ s)$$

$$v_2 = 200\ km/h + 300\ km/h$$

$$v_2 = 500\ km/h$$

$$\vec{v}_2 = 500\ km/h\ [N]$$

8.



Section I

$V_1 = 0$

$\Delta t = 6.0\,s$

$a = 2.0\,m/s^2$

$V_2 = ?$

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

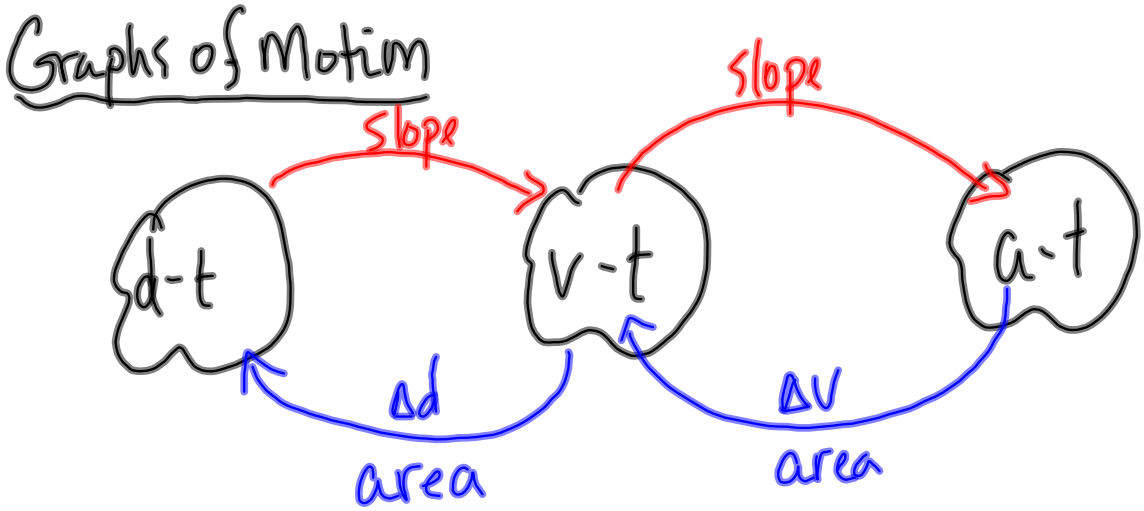
$a = \frac{V_2 - V_1}{\Delta t}$

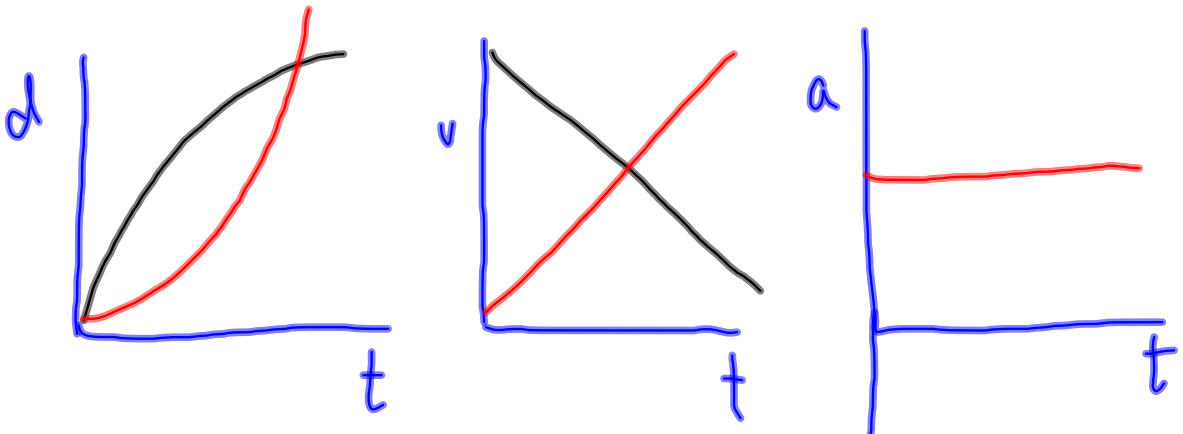
$V_2 = a\Delta t + V_1$ ($V_1 = 0$)

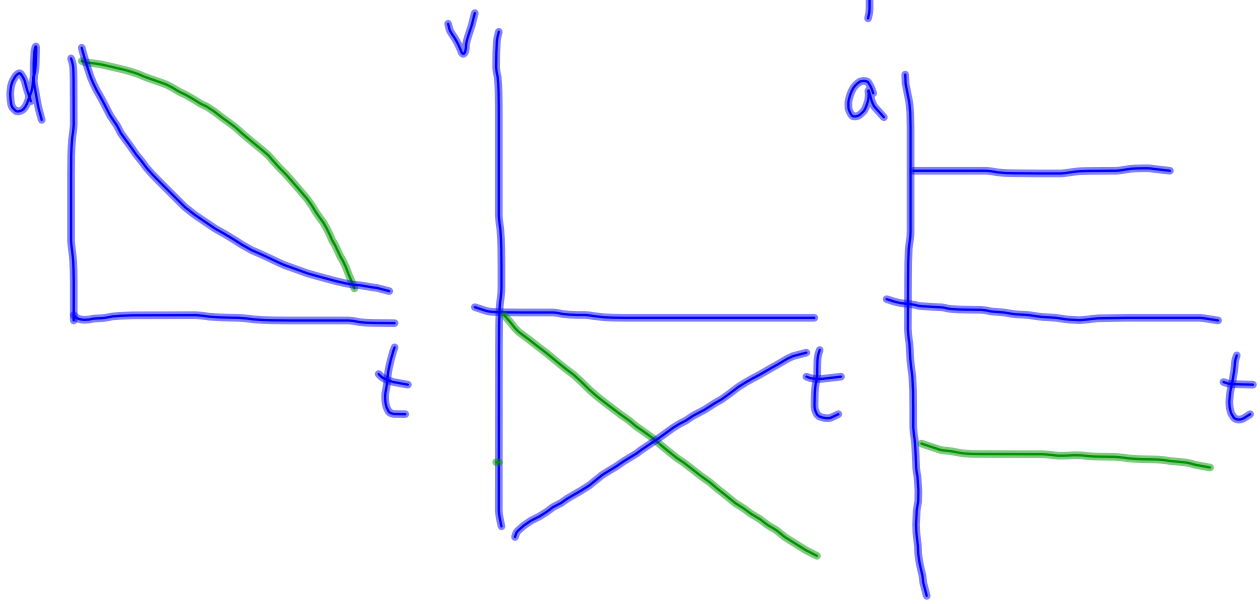
$V_2 = (2.0\,m/s^2)(6.0\,s)$

$\boxed{V_2 = 12\,m/s}$

Graphs of Motion

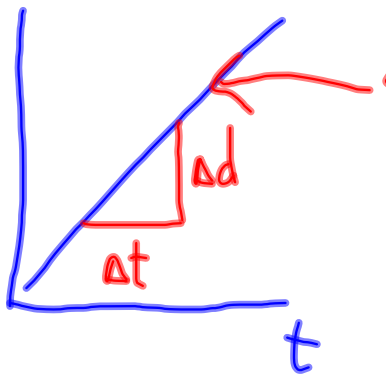






Constant / Average / Instantaneous Velocity

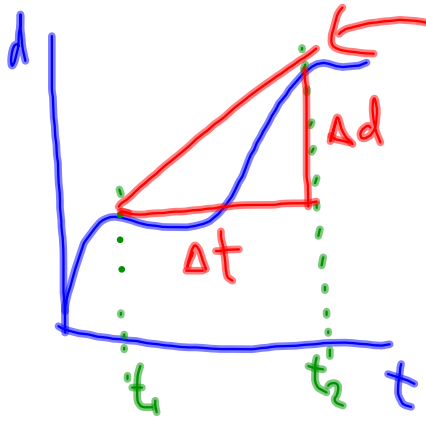
Constant:



slope is constant

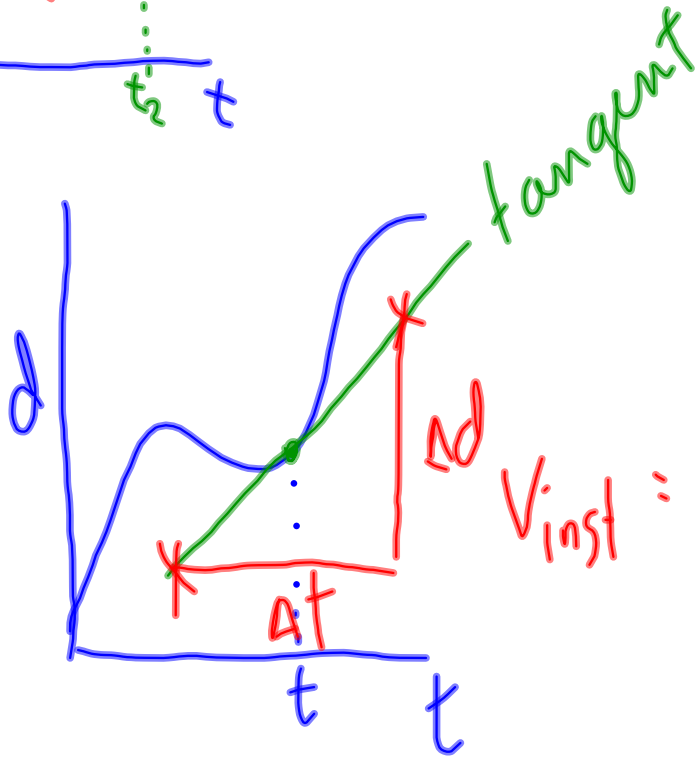
$\text{Slope} = V = \frac{\Delta d}{\Delta t}$

Average:



$\text{slope} = V_{ave} = \frac{\Delta d}{\Delta t}$

Instantaneous:



$V_{inst} = \frac{\Delta d}{\Delta t}$