

9.



$$d_A + d_B = 100 \text{ m}$$

$$V_A t + V_B t = 100$$

$$(45)t + (35)t = 100$$

$$80t = 100$$

$$t = 12.5 \text{ s}$$

$$d = d_0 + V_i t + \frac{1}{2} a t^2$$

$$d_A = V_A t$$

$$d_B = V_B t$$

$$d_A = (45)(12.5)$$

$$= 562.5 \text{ m}$$

5)

$$d = .3 \text{ km} = 300 \text{ m}$$

$$t = 10 \text{ min} = 600 \text{ s}$$

$$d = d_0 + v_i t + \frac{1}{2} a t^2$$

$$a) \quad 300 = v(600)$$

$$v = .5 \text{ m/s}$$



b)

$$v = v_i (1.2)$$

$$v = (.5)(1.2) = .6$$

$$8.33 \text{ min}$$

$$500 \text{ s}$$

1 >



$$V_i = ?$$

$$t = 7.00 \text{ s}$$

$$V_f = 0$$

$$\bar{V} = -35.0 \text{ km/h} = -9.72 \text{ m/s}$$

$$\bar{V} = \frac{V_f + V_i}{2}$$

$$-9.72 = \frac{0 + V_i}{2}$$

$$V_i = \frac{-9.72 \cdot 2}{1} = -19.4 \text{ m/s}$$

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

$$a = \frac{-19.4444 - 0}{7} = \boxed{-2.78 \text{ m/s}^2}$$