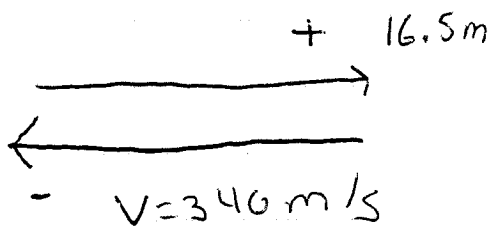
2-49)



$16.5m = V_B t_1$

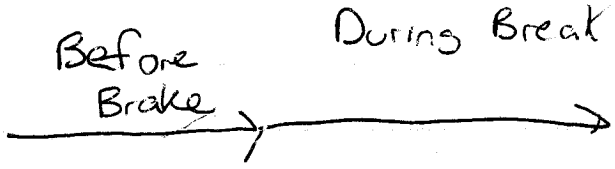
$-16.5m = -340\ m/s\ t_2$

$t_2 = .0485s$ so $t_1 = 2.50s - .0485s$

$\simeq 2.45s$

$$V_B = \frac{16.5m}{2.45s} = 6.7\ m/s$$

39)



$\Delta x_1 = v_0 t_1$ $\quad \Delta x_2 = v_0 t_2 + \frac{1}{2} a t_2^2$ (v_0 is same between parts)

$v_f = 0 = v_0 + a t$

$v_f^2 = 0 = v_0^2 + 2a\Delta x_2$

$$\Delta x = \Delta x_1 + \Delta x_2 = v_0 t_1 - \frac{v_0^2}{2a}$$

$t_1 = 1s$ $\quad v_0 = 90 km/hr$

39 cont) $V_0 = \frac{90\,km}{hr}\left(\frac{1\,hr}{3600\,s}\right)\left(\frac{1000\,m}{1\,Km}\right) = 25\,m/s$

$$\Delta x = V_0 t_1 - \frac{V_0^2}{2a}$$

$$\Delta x = (25\,m/s)(1s) - \frac{V_0^2}{2a}$$

$$= 25m - \frac{625\,m^2/s^2}{2a}$$

$a = -4\,m/s^2$ then $\Delta x \approx 103\,m$

$a = -8\,m/s^2$ then $\Delta x \approx 64\,m$

84)