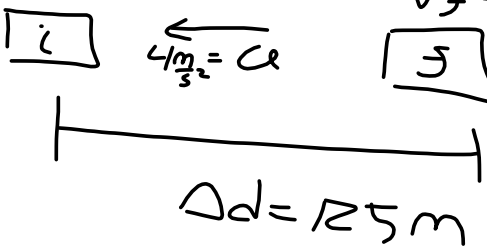
Questions

16)



$V_f^2 = V_i^2 + 2a\Delta d$

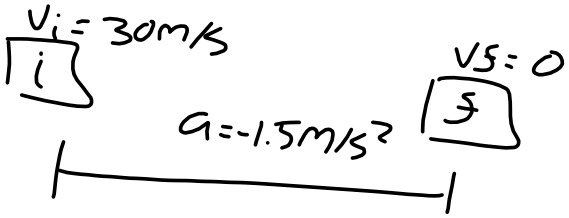
$V_i^2 = -2a\Delta d$

$V_i = \sqrt{-2(-4m/s^2)(125m)}$

$= 31.6 m/s$

$= 113 km/h$

17)



$V_f = V_i + a\Delta t$

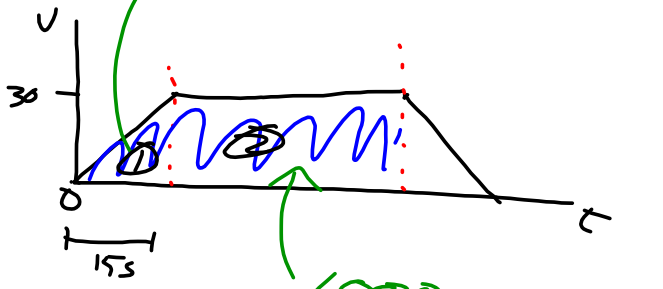
$0 = 30m/s \cdot 1.5m/s^2 \Delta t$

$\frac{1.5m/s^2 \Delta t}{1.5m/s^2} = \frac{30m/s}{1.5m/s^2}$

$\Delta t = 20s$

Question 25

25)



$\frac{30\text{m/s}(15\text{s})}{2} = 225\text{m}$

6000m - 225m = 5775

$\Delta t_1 = 15\text{s}$

$\Delta t_2 = \frac{5775\text{m}}{30\text{m/s}} = 192.5\text{s}$

Δt_3

$\Delta t = \frac{v_f - v_i}{a}$

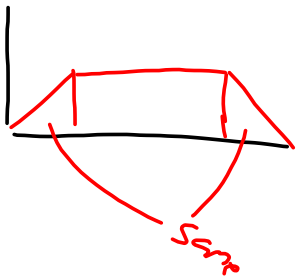
$= \frac{0 - 30\text{m/s}}{-2\text{m/s}^2}$

$= 15\text{s}$

$\Delta t_{TOT} = 222.5\text{s}$

b) $\Delta d_{TOT} = \underbrace{\Delta d_1 + \Delta d_2}_{6000\text{m}} + \Delta d_3 = 6000\text{m} + 225\text{m}$

$= 6225\text{m}$



$\Delta d_1 = \Delta d_3 = 225\text{m}$

c) $v_f = v_i + a\Delta t$

$= 0 + (2\text{m/s}^2)(12\text{s})$

$= 24\text{m/s}$