

P112 Tougher Motion sheet # 1

$v_i = 0$ $t_1 = 15s$ $v_f = 30$ $t_2 = ?$ $v = 30$ $a = -2.0 m/s^2$ $v = 0$
 $21.4 m/s$ $0 m/s$ $31.2 m/s$

d_1 $6000m$ d_2 $51.2m$

$d_1 = \frac{1}{2} a t^2$
 $d_1 = v_i t + \frac{1}{2} a t^2 = \frac{(0+30)}{2}(15s) = 225m$

$d_2 = 6000 - 225 = 5775m$
 $t_2 = \frac{5775m}{30 m/s} = 192.5s$

$t_3 = \frac{v_f - v_i}{a} = \frac{(0) - (+30)}{-2.0 m/s^2} = 15s$

Total $t = 15 + 192.5 + 15 = 222.5s$

$v_f = v_i + a t = (0) + (+2.0)(12s) = 24 m/s$

Mar 14-11:09 AM