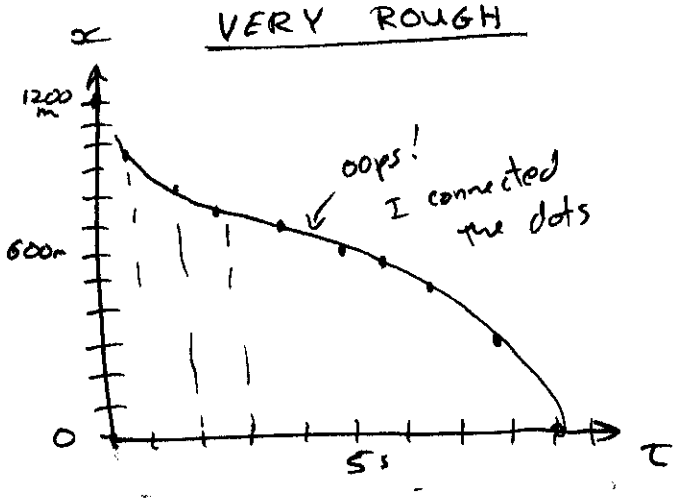
Chapter 2 #1 :

$t = 0\,s$	$x_0 = 1200\,m$
$t = 1\,s$	$x = 980\,m$
$t = 2\,s$	$x = 810\,m$
$t = 3\,s$	$x = 750\,m$
$t = 4\,s$	$x = 700\,m$
$t = 5\,s$	$x = 625\,m$
$t = 6\,s$	$x = 600\,m$
$t = 7\,s$	$x = 500\,m$
$t = 8\,s$	$x = 300\,m$
$t = 9\,s$	$x = 0\,m$



Chapter 2 # 27 :

$V_{ox} = 8.0\,m/s$

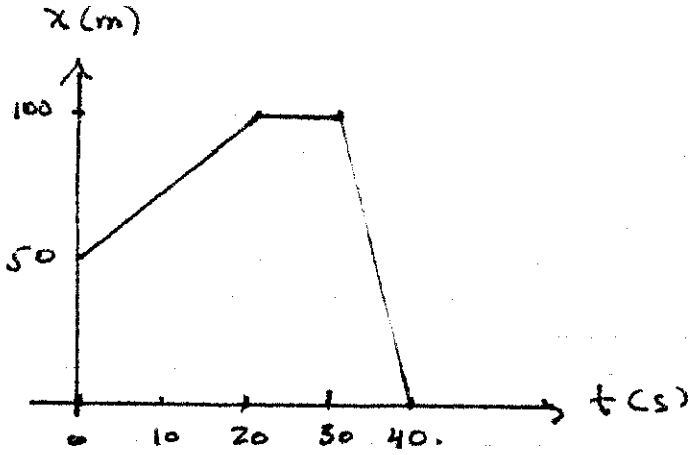
$a_{avg} = \dfrac{V_f - V_o}{\Delta t}$ or $V_f = a_{avg}\,\Delta t + V_o$

$a_{avg} = 2\,m/s^2$ so $V_f = (2\,m/s^2)(4\,s) + 8.0\,m/s$

$= \underline{16\,m/s}$

Chapter 2

8:



Velocity at $t = 10\,s$.

→ at $t = 10\,s$ the motion of the cyclist is described by the first straight-line segment.

Since this line is straight, slope of tangent line is equal to slope of line.

Slope of first line segment: $m = \frac{\Delta x}{\Delta t} = \frac{100 - 50\,m}{20 - 0\,s} = 2.5\,\frac{m}{s}$

$\Rightarrow v(10s) = 2.5\,m/s$

Similarly $v(25s) = 0\,m/s$

and $v(35s) = -10\,m/s$

Ch. 2 #56.

a) accelerating to full speed → $v_i = 0$, $v_f = 5\ m/s$, $a = 1\ m/s^2$

$$v_f^2 = \cancel{v_i^{\,0\,2}} + 2a \cdot \Delta y \quad \Rightarrow \quad \Delta y = \frac{v_f^2}{2a} = \frac{25\ m^2/s^2}{2\ m/s^2}$$

$$\Rightarrow \boxed{\Delta y = 12.5\ m}$$ → distance over which elevator accelerates.

→ Note: time it takes to do that → $v_f = v_i + a \cdot t$

$$\Rightarrow t = \frac{v_f}{a} = \frac{5\ m/s}{1\ m/s^2}$$

Similarly, for the deceleration phase, $\Delta y = 12.5\ m$, taking 5s.

b) The total trip consists of a) 12.5 m acceleration lasting 5s

b) 175 m constant speed of 5 m/s

c) 12.5 m deceleration lasting 5s.

~~the length of the constant speed segment is:~~

The constant-speed segment lasts $\Delta t = \frac{175\ m}{5\ m/s} = 35$.