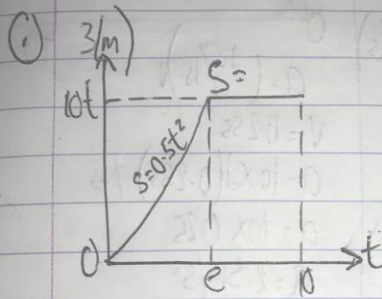


NAME: MOKOLO STEVE CHIBUYOK

18/ENGG02/058

COMPUTER ENGG



$$v = \frac{ds}{dt}$$

$$v = 1.5t^2$$

$$\text{at } t = 6s$$

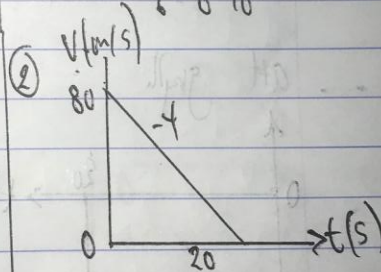
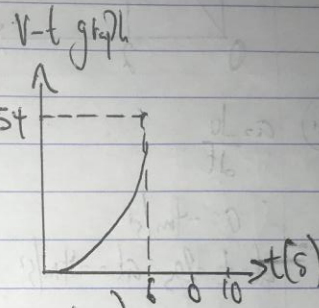
$$v = 1.5 \times 6^2$$

$$= 1.5 \times 36$$

$$v = 54 \text{ m/s}$$

$$t = 6s - 10s, s = 108$$

$$\therefore v = 0$$



(i)  $s = \int v dt$

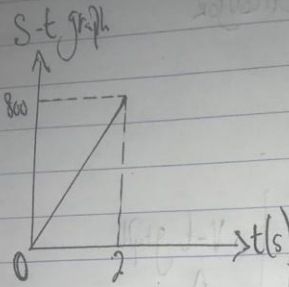
$$s = \int (-4t + 80)$$

$$s = -2t^2 + 80t$$

$$\text{at } t = 20s$$

$$s = -2(20)^2 + 80(20)$$

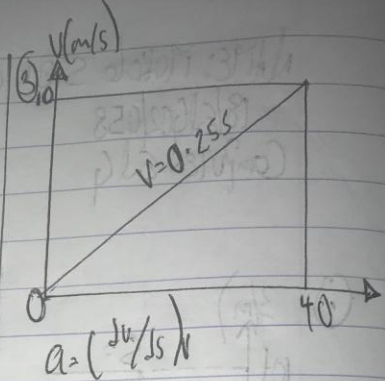
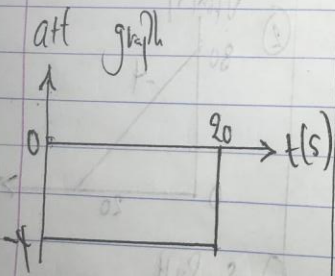
$$s = 1600 - 800 = 800 \text{ m}$$



(ii)  $a = \frac{dv}{dt}$

$\therefore a = -4 \text{ m/s}^2$

at  $t = 2 \text{ s}$ ,  $at = -4 \text{ m/s}^2$



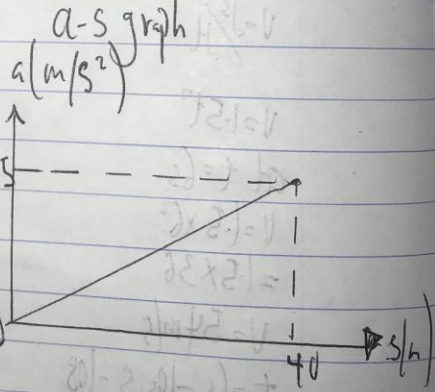
$a = \left( \frac{dv}{dt} \right) \text{ N}$

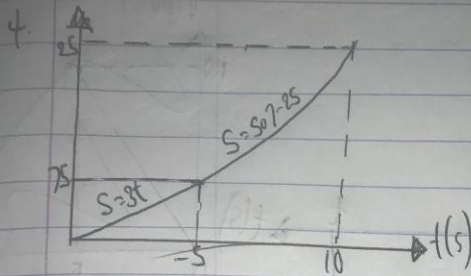
$v = 0.25 \text{ s}$

$a = 10 \times (0.25) / \text{s}$

$a = 10 \times 0.25$

$a = 2.5 \text{ m/s}^2$





$$V = \frac{ds}{dt}$$

$$\text{at } t = 5s$$

$$V = at = 6 \times 5$$

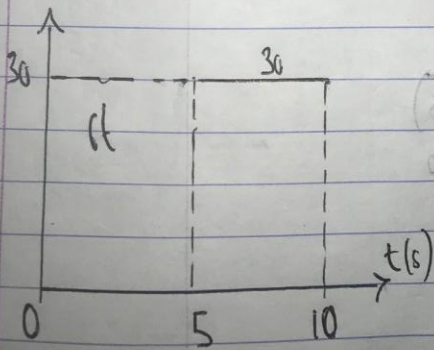
$$= 30 \text{ m/s}$$

$$\text{at } t = 10s$$

$$V = 6 \times 10$$

$$V = 30 \text{ m/s}$$

V-t graph



$$v) a = \frac{dv}{dt}$$

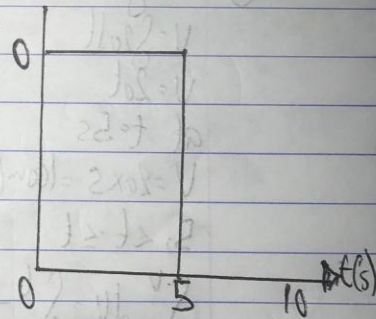
$$\text{at } t = 5s$$

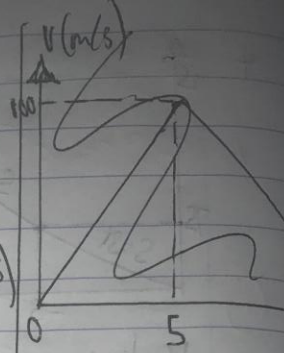
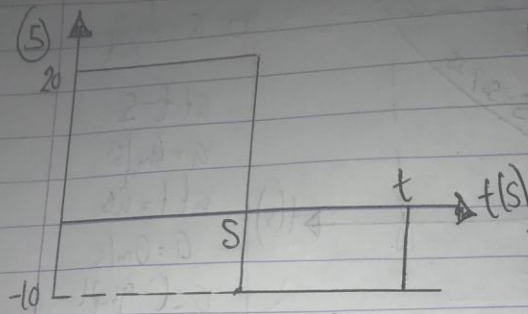
$$a = 6 \text{ m/s}^2$$

$$\text{at } t = 10s$$

$$a = 0 \text{ m/s}^2$$

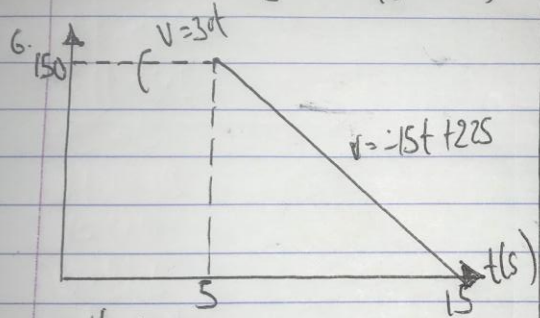
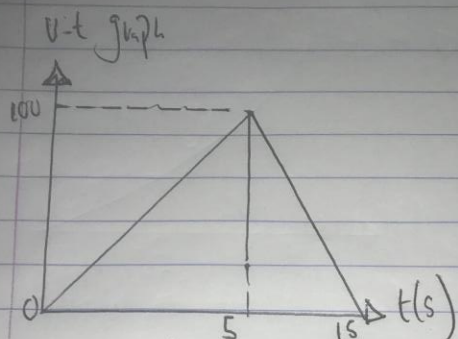
a-t graph  
a(m/s<sup>2</sup>)





(i)  $v = \int a dt$   
 $v = \int 20 dt$   
 $v = 20t$   
 at  $t = 5s$   
 $v = 20 \times 5 = 100 \text{ m/s}$   
 $5s < t \leq 10$   
 $\int_{100}^v dv = \int_5^t -10 dt$   
 $v - 100 = -10t + 50$   
 $v - 100 = -10t + 50$   
 $v = -10t + 150$   
 at  $t = 10$   $v = 0$   
 0-

$20 = \frac{dv}{dt}$   
 $20 dt = dv$   
 $20 \int dt = \int dv$   
 $20t = v$   
 $20 \times 5 = v$   
 $100 = v$   
 $20 = \frac{dv}{dt}$   
 $20 dt = dv$   
 $20 \int dt = \int dv$   
 $20t = v$   
 $20 \times 5 = v$   
 $100 = v$



$$0 \leq t \leq 5,$$

$$V = 30t$$

$$\int_0^5 ds = \int_0^5 30t$$

$$s = 15t^2 \Big|_0^5$$

$$s = 15(5)^2 - 15(0)^2$$

$$s = t \leq 15s$$

$$V = -15t + 225$$

$$\int_{375}^3 ds = \int_5^{15} (-15t + 225) dt$$

$$s - 375 = -\frac{15t^2}{2} + 225t \Big|_5^{15}$$

$$s - 375 = \left[ \frac{-15(15)^2}{2} + 225(15) \right] - \left[ \frac{-15(5)^2}{2} + 225(5) \right]$$

$$s - 375 = \left[ \frac{-15 \times 225}{2} + 3375 \right] - \left[ \frac{-15 \times 25}{2} + 1125 \right]$$

$$s - 375 = (-1687.5 + 3375) - (-187.5 + 1125)$$

$$s - 375 = 1687.5 - 937.5$$

$$s - 375 = 750$$

$$s = 1125m$$

