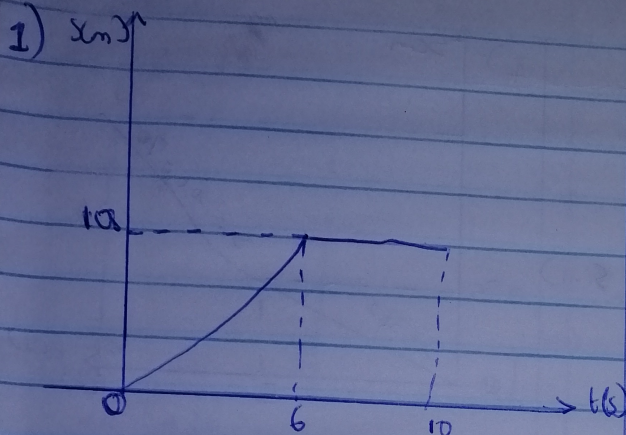


Nwerek Uche Michael
 Civil ENGINEERING
 18 Engos 1000



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

$$v = 1.5t^2$$

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

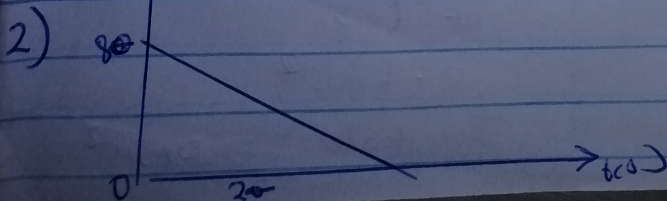
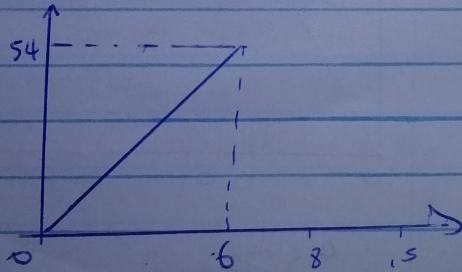
$$v = 1.5 \times 6^2$$

$$= 1.5 \times 36$$

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

$$\therefore v = 54$$

$v-t$ Graph



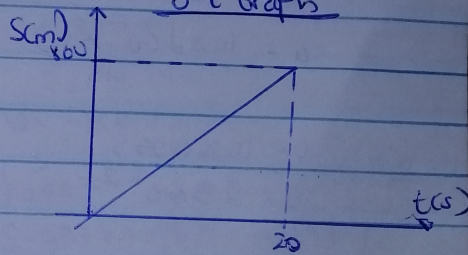
i) $s = \int v dt$
 $s = \int (-4t + 80) dt$
 $s = -2t^2 + 80t$

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

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

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

$s-t$ Graph



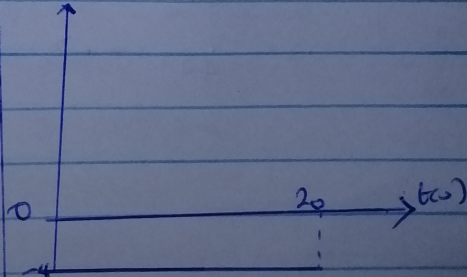
Acceleration (ii)

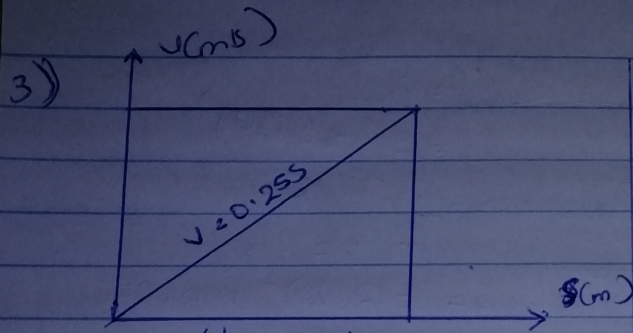
$$a = \frac{dv}{dt}$$

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

$$\text{at } t = 20, a = -4 \text{ m/s}^2$$

$A-t$ Graph





$$a = \left(\frac{dv}{ds} \right) v$$

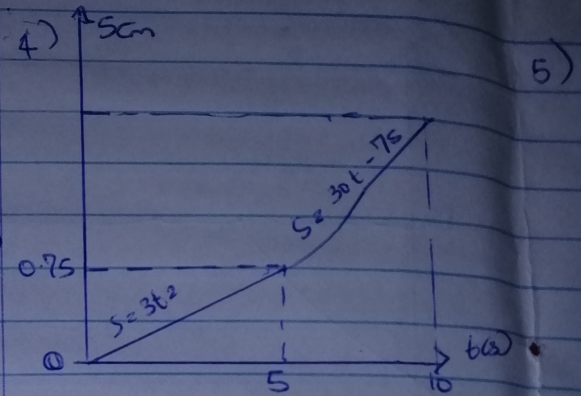
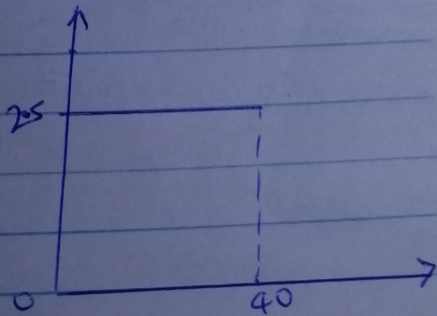
$$v = 0.25s$$

$$a = \frac{10 \times d(0.25s)}{ds}$$

$$a = 10 \times 0.25$$

$$a = 2.5 \text{ ms}^{-2}$$

A-S Graph
 $a(\text{ms}^{-2})$



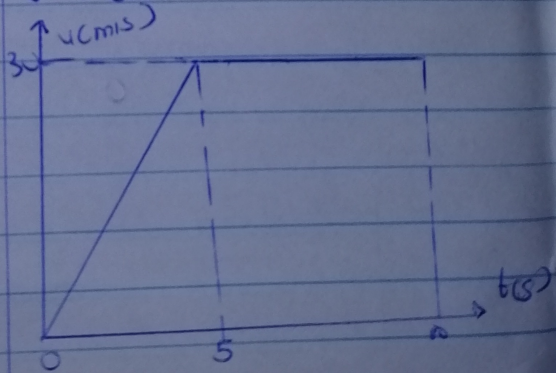
i) $v = \frac{ds}{dt}$

at $t = 5s$

$$v = 6t = 30 \text{ m/s}$$

at $t = 10s$,
 $v = 60$

V-T Graph

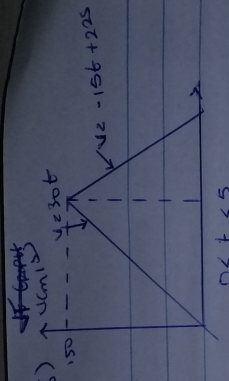


$$a = \frac{dv}{dt}$$

at $t = 5$,

$$a = 6 \text{ ms}^{-2}$$

at $t = 10$, $a = 0 \text{ ms}^{-2}$

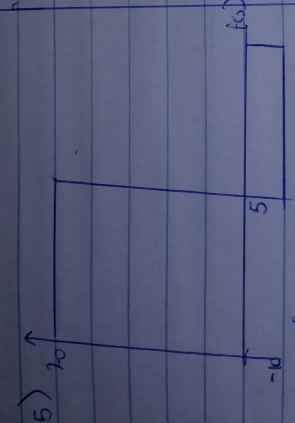


$\int_0^5 ds = \int_0^5 30t$
 $S = \int_0^5 15t^2 dt$
 $S = 15(5)^2 = 375$
 $S = 875m$

$S_{26} = 155$
 $v = -15t + 225$
 $\int_{375}^5 ds = \int_5^{15} (-15t + 225) dt$
 $S - 375 = \frac{-15t^2}{2} + 225t \Big|_5^{15}$

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

$S - 375 = (-1687.5 + 3375) - (-187.5 + 1125)$
 $S - 375 = 1687.5 - 937.5$
 $S - 375 = 750$
 $S = 1125m$



$v = \int a dt$
 $v = \int 20 dt$
 $v = 20t$
 at $t = 5s$
 $v = 100 m/s$

$v = 5s < t < 6'$
 $\int_{100}^0 dv = \int_0^6 -10 dt$
 $v = 100 = -10t + 10(5)$
 $v = 100 = -10t + 50$
 at $t = 2.5$

$0 - 100 = 10t + 50$
 $10t = -150$
 $t = 15s$

