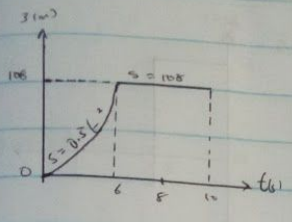
FIDELIS GODFREY MAMZA 18/ENG04/0440 ENCT

ENG 234



$v = ds/dt$

$v = 1.5t^2$

at $t = 6s$

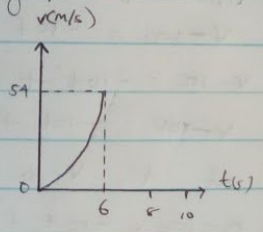
$v = 1.5 \times 6^2 = 1.5 \times 36$

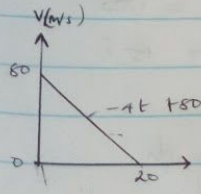
$v = 54 m/s$

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

$\therefore v = 0$

v-t graph





$s = \int v\,dt$

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

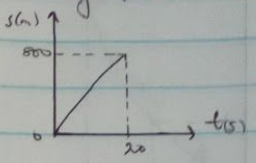
$s = -2t^2 + 80t$

at $t = 20s$

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

$s = 1600 - 800 = 800m$

s-t graph

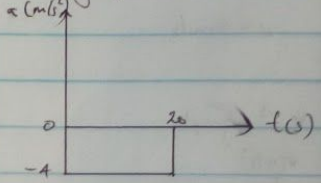


(b) acceleration

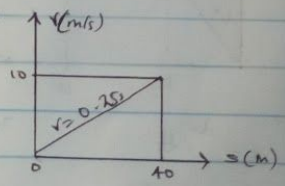
$a = dv/dt$ $a = -4 m/s^2$

at $t = 20s$, $a = -4 m/s^2$

a-t graph



(3)



$a = \left(dv/ds\right) v$

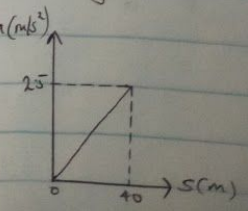
$v = 0.25s$

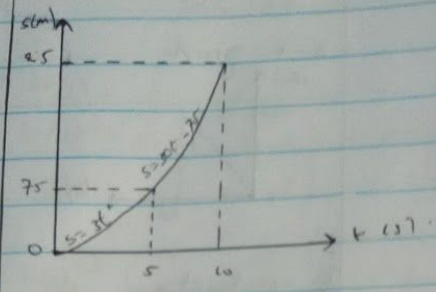
$a = 10 \times d(0.25s)/ds$

$a = 10 \times 0.25$

$a = 2.5 m/s^2$

a-s graph



4. 

a. $v = ds/dt$

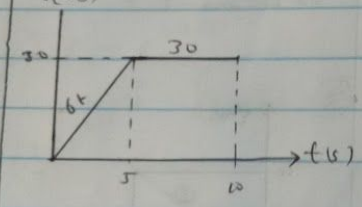
at $t = 5s$

$v = 6t = 6 \times 5 = 30 m/s$.

at $t = 10s$.

$v = 30 m/s$.

v-t graph.



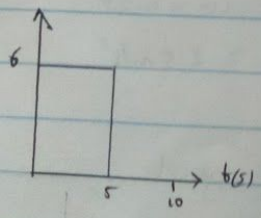
b. $a = dv/dt$

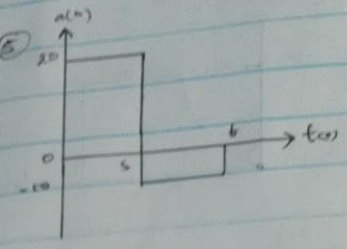
at $t = 5s$

$a = 6 m/s^2$

at $t = 10s$

$a = 0 m/s^2$.



5. 

(a) $v = \int a\,dt$

$v = \int 20\,dt$

$v = 20t$

at $t = 5s$

$v = 20 \times 5 = 100 m/s$

$5s < t \leq t'$

$\int_{100}^{v} dv = \int_{5}^{t'} -10\,dt$

$v - 100 = -10t \Big|_5^{t'}$

$v - 100 = -10t' + 10(5)$

$v - 100 = -10t' + 50$

at t', $v = 0$

$0 - 100 = -10t + 50$

$10t = 150$

$t = 15s$.

v-t graph