TAIWO OLADIPUPO OLAWALE

18/ENG02/090

COMPUTER ENGINEERING

MEACHANICS ASSIGNEMENT

The following are snapshots to the solution of the assignemnets:

$v = 30t$

$\int_0^s 1 = \int_5^{15} 30t$

$s = [15t^2]_5^{15}$

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

$s = 15 \times 25$

$= 375$

$5 \leq t \leq 15$

$v = -15t + 225$

$\int_{375}^{s} 1 = \int_5^{15} (-15t + 225)\,dt$

$s - 375 = \left[\frac{-15t^2}{2} + 225t\right]_5^{15}$

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

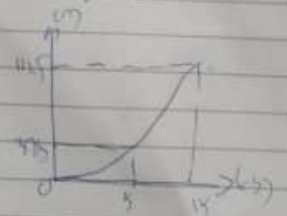
$s - 375 = \left[\frac{-15 \times 225}{2} + 3375\right] - \left[\frac{-15 \times 25}{2} + 1125\right]$

$s - 375 = (-1687.5 + 3375) - (187.5 + 425)$

$s - 375 = 1162.5 - 612.5$

$s - 375 = 750$

$s = 1125$ m



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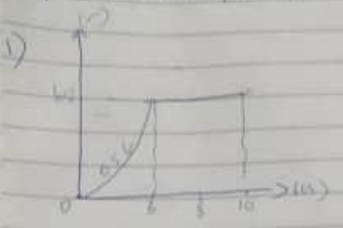
18/ENG02/090 COMPUTER Engineer

1)



$V = \frac{ds}{dt}$ $V = 15t^2$

at $t = 6s$

$V = 1.5 \times 6^2$

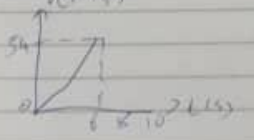
$= 1.5 \times 36$

$V = 54 m/s$

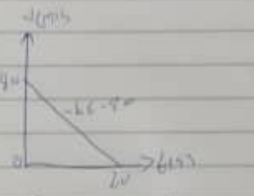
for $t = 6 - 10$, $s = 6t$

$\therefore V = 6$

$V = 6\ m/s$



2.)



i) $S = \int v\,dt$, $S = \int (-6t + 80)$

$S = -\frac{6t^2}{2} + 80t$

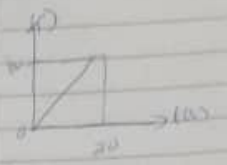
$S = 3(-2t^2 + 80t$

at $t = 20s$

$S = -2(20)^2 + (80 \times 20)$

$S = 1600 - 800 = 800 m$

5-6 Jump

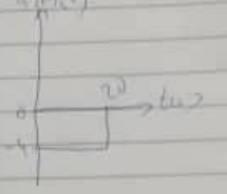


(b) acceleration

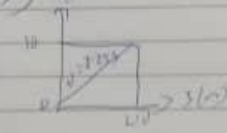
$a = dv/dt$, $a = -4 m/s^2$

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

at 4-6 Jump



3.)



$a = (\int v)\,dt)$, $v = 0.25s$

$a = 6 \times d(0.25)/dt$, $a = 1.5 m/s^2$

4-5 Jump