Mbamalu Nnamdi David 18/ENG07/008 Petroleum Engineering

① First section

$s = 0.5t^2$; $V = \frac{ds}{dt}$; $V = \frac{3}{2}t^2$

(a) $t = 0$

(b) $t = t$

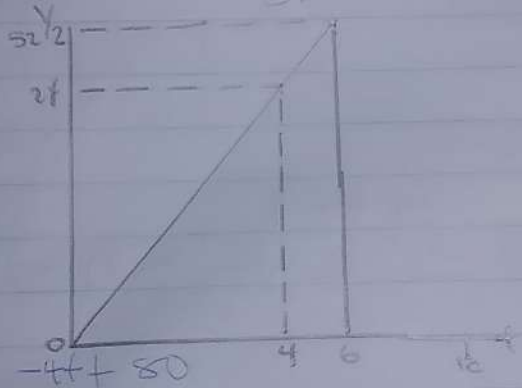
(c) $t = 5.9$

$V = \frac{3}{2}(0)^2$ $V = \frac{3}{2}(4)^2$ $V = \frac{3}{2}(5.9)^2$

$V = 0$ m/s $V = 24$ m/s $V = 52.2$ m/s

2nd section

$s = 108$m $V = \frac{ds}{dt}$; $V = 0$ m/s



② $V = -4t + 80$

$s = \int -4t + 80$) $\frac{-4t^2}{2} + 80t$

(a) $t = 0$

$s = 0$

(b) $t = 10$

$s = \frac{-4(10)^2}{2} + 80(10)$

$s = -200 + 800$

$s = 600$m

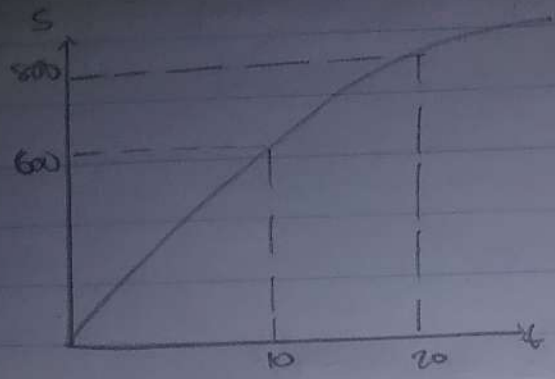
(c) $t = 20$

$s = \frac{-4(20)^2}{2} + 80(20)$

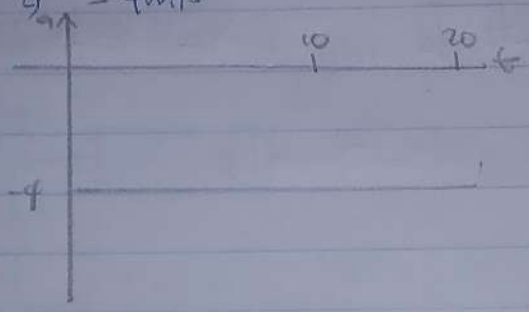
$s = -800 + 1600$

$s = 800$m

Sketch



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



④ First section

$S = 3t^2 \quad V = 6t$

⑤ $t = 0$ ⑦ $t = 2$ ⑨ $t = 4$

$V = 0$ m/s $V = 6(2) = 12$ m/s $V = 6(4) = 24$ m/s

⑧ $a = 6 m/s^2$

2nd Section

$S = 80t - 75$; $V = 80 - 75$

$= -45$ m/s

$a = 0 m/s^2$

Sketch