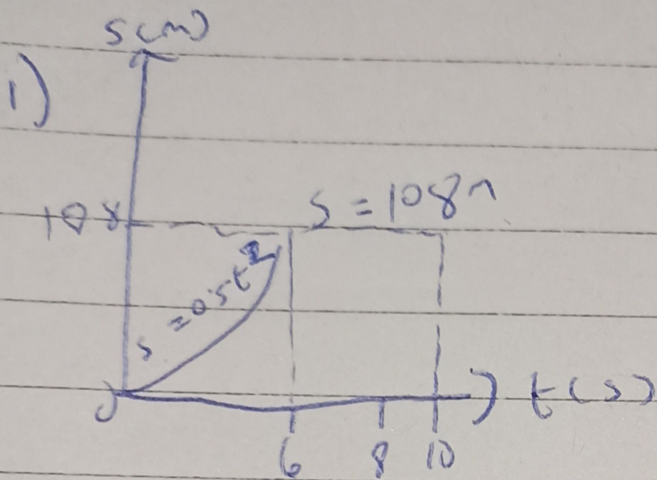


Giles Omdmabi

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

$$v = 15t^2$$

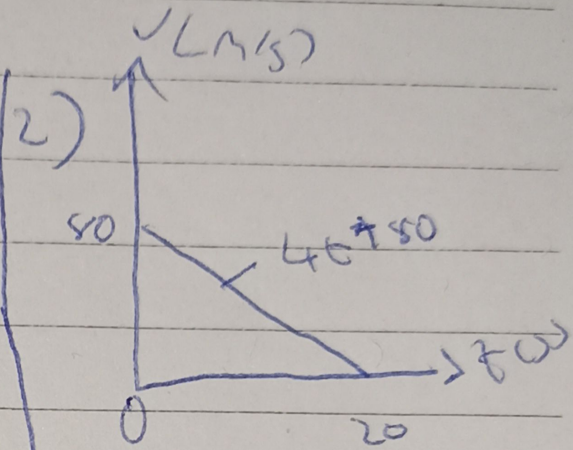
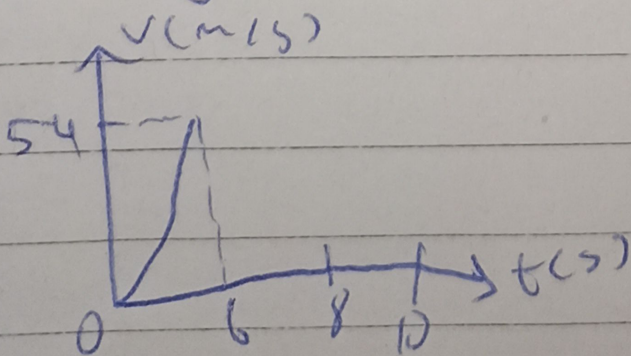
at $t = 6s$

$$v = 15 \times 6^2 = 54 \text{ m/s}$$

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

$$\therefore v = 0$$

v-t graph:



$$s = \int v dt$$

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

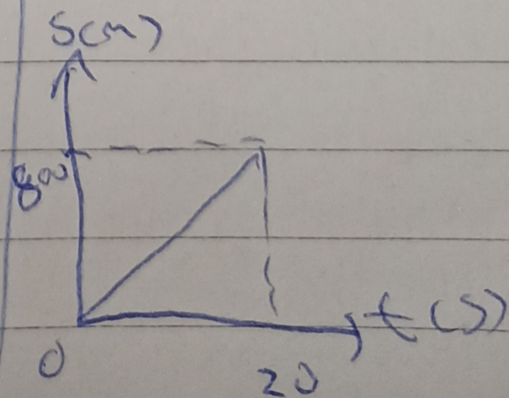
$$s = -2t^2 + 80t$$

at $t = 20s$

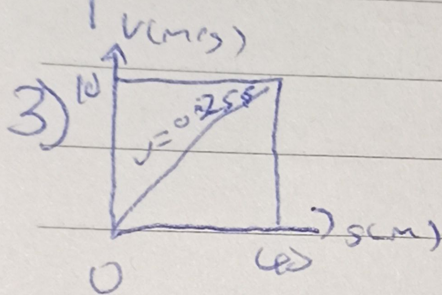
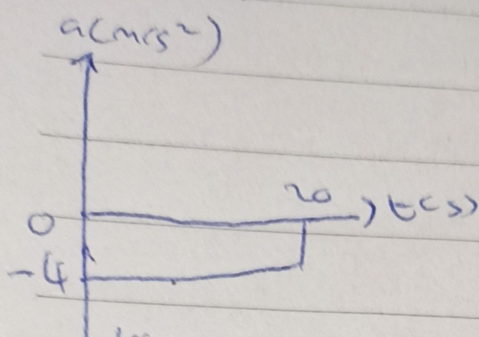
$$s = -2(20)^2 + 80(20)$$

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

s-t graph:



a-t graph:



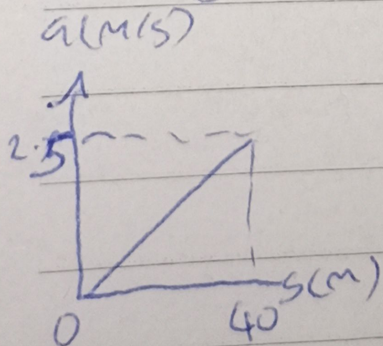
$$a = \left(\frac{dv}{dt} \right) v$$

$$v = 0.25$$

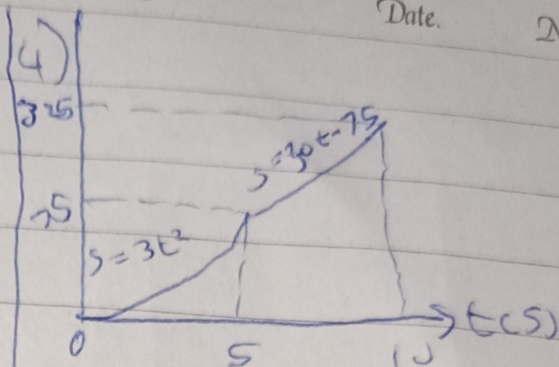
$$a = 10 \times d(0.25) / dt$$

$$a = 10 \times 0.25 = 2.5 \text{ m/s}^2$$

a-s graph:



s(m)



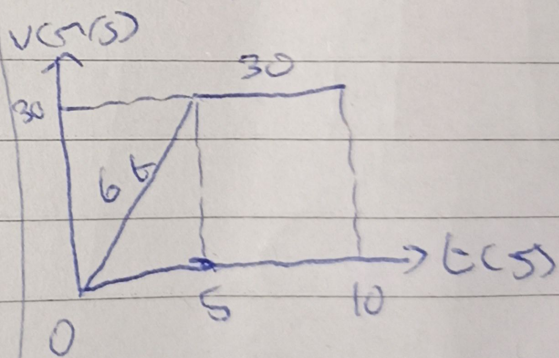
$$i) v = \frac{ds}{dt}$$

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

$$v = 6t = 6 \times 5 = 30 \text{ m/s}$$

at $t = 10\text{s}$, $v = 30 \text{ m/s}$

v-t graph:



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

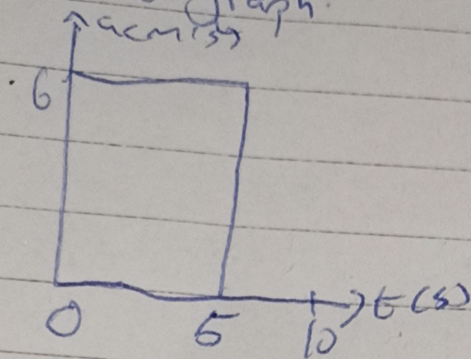
at $t = 5\text{s}$;

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

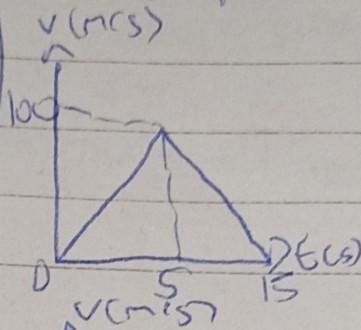
~~at $t = 10\text{s}$, $a = 0 \text{ m/s}^2$~~

at $t = 10\text{s}$, $a = 0 \text{ m/s}^2$

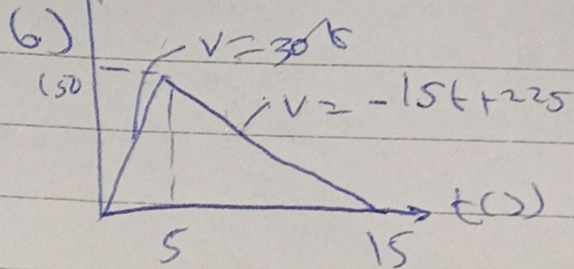
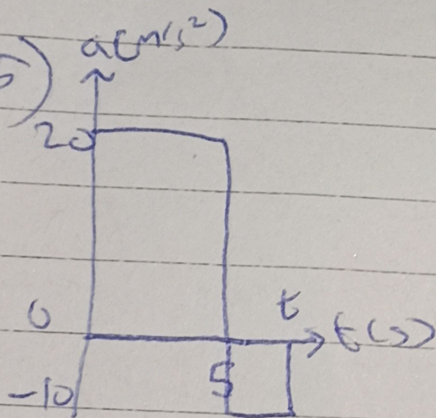
a-t graph:



v-t graph:



5) a-t graph:



$$i) v = \int a dt$$

$$v = \int 20 dt$$

$$v = 20t$$

at $t=5s$, $v=100m/s$

$$5s < t \leq t'$$

$$\int_{100}^v dv = \int_5^{t'} -10 dt$$

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

\therefore at t' , $v=0$

$$0 - 100 = -10t + 50$$

$$10t' = 150$$

$$t' = 15s$$

$$0 \leq t \leq 5s$$

$$v = 30t$$

$$\int_0^{15} ds = \int_0^5 30t dt$$

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

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

$$= 375m$$

$$5s \leq t \leq 15s$$

$$v = -15t + 225$$

$$\int_{225}^0 ds = \int_5^{15} (-15t + 225) dt$$

$$s = 375 = 750$$

$$s = 1125m$$

Date.

No.

S-t graph
s(m)

