

VOLUME NO.

FILE NO.

(3) $T_{12} = 8$

$$a = (0.0 - 0.055^2) \text{ m/s}^2$$

$$s = 15$$

Determine the acceleration

$$a = \frac{dv}{dt} = -0.1s$$

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

$$\therefore a = -0.05 \times v = 0.15 (0.0 - 0.055^2)$$

$$a = -0.25 + 0.0055^2$$

$$\text{at } s = 15$$

$$a = -0.25 - 2(15) + 0.005(15^2)$$

$$a = -30 + 16.875$$

$$a = -13.125 \text{ m/s}^2 \approx -13.13 \text{ m/s}^2$$

(4) $T_{12} = 7$

$$a = (4t^2 - a)$$

$$v = \frac{4}{3}t^3 - 2t + C_1$$

$$s = \frac{4}{12}t^4 - t^2 \Rightarrow \frac{1}{3}t^4 - t^2 + C_2$$

When $t = 0$ located 8m to the left

$$-8 = \frac{1}{3}(0)^4 - (0)^2 + C_1 - 0 + C_2$$

$$-8 = 0 + C_2$$

$$C_2 = -8$$

When $t = 2$, $s = 20\text{m}$

$$-8 = \frac{1}{3}(2)^4 - 2^2 + 2C_1 - 8$$

$$-8 = \frac{8}{3} - 4 + 2C_1$$

$$C_1 = -9.667 \approx -9.67$$

David Rayner

When using C and C₂

$$4/12 \cdot 4^t - 4^2 - (4 \cdot 967) - 2$$

$$= 28.667$$

$$\therefore S = 28.667m_{11}$$

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(1) T12-3

$$v = (4t - 3t^2) \text{ m/s}$$

Determine the position

$$t = 4 \text{ secs}$$

$$s = 0 \text{ when } t = 0$$

$$v = ds/dt = 4t - 3t^2$$

$$\int_0^4 ds = \int_0^4 (4t - 3t^2) dt$$

$$s = 4t^2 - t^3$$

Recall $t = 4s$

$$s = 2(4)^2 - (4)^3$$

$$= 32 - 64 = -32 \text{ m}$$

(2)

T12-4

$$v = (0.5t - 8t) \text{ m/s}$$

$$t = 25$$

Determine the acceleration
 $a = dv/dt = d/dt (0.5t - 8t)$

$$= 1.5t^2 - 8$$

$$\text{Recall } t = 2$$

$$a = 1.5(2)^2 - 8$$

$$a = 6 - 8$$

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

FILE REGISTERED

Signature