

$$7a. \quad V = \int \pi y^2 dx$$

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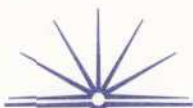
$$= \pi \int 8 - \frac{x^2}{2} dx$$

$$= \pi \left[8x - \frac{\frac{1}{2}x^3}{2} \right]$$

$$= \frac{1}{2} \pi [16x - \frac{1}{3}x^3] \text{ units}^3$$

$$6i. \quad P(\text{fail, correct}) = \frac{25}{100} \times \frac{75}{100} \\ = \frac{3}{16}$$

$$ii. \quad P(\text{fail, fail, fail}) = \frac{25}{100} \times \frac{25}{100} \times \frac{25}{100} \\ = \frac{1}{64}$$



$$c). \quad x = \frac{t-2}{t+2}$$

when $t=0$

$$x = \frac{0-2}{0+2}$$

$$= \frac{-2}{2}$$

$$= -1 \text{ m}$$

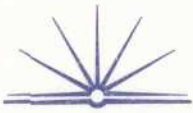
$$ii. \quad x = \frac{1-4}{t+2}$$

$$\frac{(t-2)}{(t+2)} = \frac{1-4}{t+2}$$

~~$$\frac{t-2}{t+2} = \frac{1-4}{t+2}$$~~

$$\frac{1-4}{(t+2)} = \frac{-(t+2)}{(t+2)}$$

$$= \frac{-3}{1} = \frac{-4}{(t+2)}$$



ii. continued. $x = 1 - \frac{4}{t+2}$

$$v = \frac{dx}{dt} = \frac{d}{dt} \left(1 - \frac{4}{t+2} \right)$$
$$= \frac{0 - (-4)}{(t+2)^2}$$
$$= \frac{4}{(t+2)^2}$$

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