



$$\textcircled{1} \quad \frac{3\pi}{5} = 108 \qquad \frac{\pi}{5} = 36$$

$$\textcircled{i} \quad \angle ADC = 180 - \frac{\pi}{5}(36) - \cancel{108} \cancel{72}$$

$$= 20 \text{ or } (72^\circ)$$

$\therefore \angle ADB = 108^\circ$ (angles on straight lines add up to 180)

$$\angle BAD = 36^\circ$$

\therefore they are similar because they have three angles the same.



$$(i) \frac{dv}{dt} = 2e^t + 2e^{-t}$$

Initially v when $t=0$

$$\frac{dv}{dt} = 2e^0 + 2e^{-0}$$

$$= 2 \times 1 + 2 \times 1$$

$$= 4$$

$$(ii) \frac{dv}{dt} = 2e^t + 2e^{-t}$$

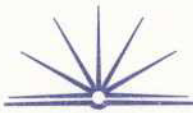
$$\int 2e^t + 2e^{-t} dt$$

$$\left[\frac{2e^{2t}}{2} + 2e^0 \right]$$

$$v = \frac{2e^{2t}}{2} + 1 + C$$

$$(iii) 2e^{2t} - 3e^t - 2 = 0 \quad \text{when } v=3$$

$$= \frac{2e^{2t}}{2} + 1 + 3$$



$$\textcircled{\text{iv}} \quad 2e^{2t} - 3e^t - 2 = 0$$