

Question 8

$$a \quad N = N_0 e^{kt}$$

$$4982 = 10 e^{k(70)}$$

$$4982/10 = e^{k(70)}$$

$$498.2 = e^{70k}$$

$$\ln 498.2 = 70k$$

$$k = \frac{498.2}{70}$$

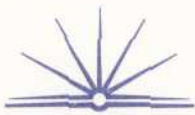
$$k \approx 7.1$$

Number of Koalas in November 2001

$$= N_0 e^{7.1(78)}$$

$$= N_0 e^{553.8}$$

=



b P (A is drawn first)

$$= \frac{1}{5}$$

P (order of names is A, B, C, D, E)

$$= \frac{1}{25}$$

c

i) y_1 at which $\frac{dy}{dx}$ is a maximum

y_1 at a maximum is ~~10cm~~ 7.5 cm

y_2 at a minimum is ~~0cm~~ 2 cm

ii)

time
(Seconds)

