

$$a) 5000 = 18e^{70k}$$

$$\ln \frac{5000}{18} = k \cdot 70$$

$$k = 0.0803$$

$$N_0 = 18$$

in Nov. 2001, $t = 78$

$$N = 18e^{78 \times 0.0803}$$

$$N = 9450$$

\therefore there's 9450 koalas in NSW

in Nov. 2001.

$$b) i) \frac{1}{5} \times \frac{1}{5} = \frac{1}{25}$$

$$ii) \frac{1}{25} \times 5 = \frac{1}{5}$$

$$9 \text{ ii } y_1 = 7.2 \text{ cm}$$

$$y_2 = 2 \text{ cm}$$

$$10 \text{ i) } y = 4 \text{ cm}$$