

$$e^{5K} = 2$$

taking  $\ln$  of both sides

$$5K = \ln 2$$

$$K = \frac{\ln 2}{5}$$

$$K = 0.1386$$

$\therefore$

$$y = \cancel{10e^{0.1386t}} \quad y = 10e^{0.1386t}$$

For  $y = 30$

at  $t = 0$ , and  $y = 30$

$$30 = Ce^{K(0)}$$

$$30 = Ce^0$$

$$30 = C$$

also Since  $y$  doubles every 5 hours

$$60 = 30e^{K \times 5}$$

$$60 = e^{5K}$$

$$30$$

$$e^{5K} = 2$$

taking  $\ln$  of both sides

$$5K = \ln 2$$

$$K = \frac{\ln 2}{5} = 0.1386$$

$$\therefore y = 30e^{0.1386t}$$

For  $y = 50$

at  $t = 0$

$$50 = Ce^{K(0)}$$

$$50 = C$$