

Question 7.

a) i)

ii)

$$b) V = 25 \left(1 - \frac{t}{60}\right)^2 \quad \text{for } 0 \leq t \leq 60$$

$$i) V = 25 \left(1 - \frac{0}{60}\right)^2$$

$$V = 25 \times 1$$

$$V = 25 \text{ litres}$$

$$ii) 6.25 = 25 \left(1 - \frac{t}{60}\right)^2$$

$$0.25 = \left(1 - \frac{t}{60}\right)^2$$

$$0.25 = (60 - t)^2$$

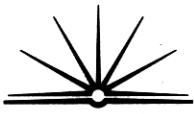
$$0.25 = 3600 - t^2$$

$$t^2 = 3600 - 0.25$$

$$t = 59.99$$

$$t = 60 \text{ seconds}$$

iii) 0 litres / Second.



c) i) because chris' chance of choosing a matching sock to the first is 1 out of 7 as he already has one in his hand therefore 6 of the 7 socks in the drawer would create an odd pair

hence chris has a $\frac{6}{7}$ chance in NOT matching his socks.

ii) $\frac{5}{6}$

iii) $\frac{2}{7}$