



$$Q7. \quad 1 + (\sqrt{5}-2) + (\sqrt{5}-2)^2$$

I. because as the geometric series progresses

$$T_n \rightarrow \infty$$

$$II. \quad a=1 \quad r=\sqrt{5}-2$$

$$S_{\infty} = \frac{a}{1-r}$$

$$= \frac{1}{3-\sqrt{5}}$$

$$= \frac{1}{3+\sqrt{5}} \times \frac{3+\sqrt{5}}{3+\sqrt{5}}$$

$$= \frac{3+\sqrt{5}}{4-5}$$

$$= \frac{3+\sqrt{5}}{4}$$

$$b. \quad v = 25 \left(1 - \frac{t}{60}\right)^2$$

$$I. \quad v = 25 \left(1 - \frac{0}{60}\right)^2$$

$$= 256$$

$$II. \quad 25 \times \frac{1}{4} = 25 \left(1 - \frac{t}{60}\right)^2$$

$$\frac{1}{4} = \left(1 - \frac{t}{60}\right)^2$$

$$\sqrt{\frac{1}{4}} = 1 - \frac{t}{60}$$

$$t = 30 \text{ sec}$$



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

$$v = 25 \left(1 - \frac{2t}{60} + \frac{t^2}{3600}\right)$$

$$= 25 - \frac{50t}{60} + \frac{50t^2}{3600}$$

$$v' = \frac{5}{6} + \frac{1}{36}t$$

$$t = 30 \quad \frac{dv}{dt} = \frac{5}{6} + \frac{30}{36}$$

$$= \frac{5}{3} \text{ socks per L per sec}$$

C. no. of socks = 8

I. There are seven socks left in the drawer

. only one of these will match his selected

sock, so there are six wrong colour socks

left in the drawer. ~~only 1/7~~ so $\frac{6}{7}$ socks

are wrong.

$$\text{II. } \frac{6}{7} \times \frac{5}{6} = \frac{5}{7}$$

$$\text{III. } 1 - \frac{5}{7} = \frac{2}{7}$$