

- 1 Corina has £300 to spend on books.
Each book costs £4.85

Work out the greatest number of books Corina can buy.

$$\begin{array}{l} \text{Number of books} \\ \text{Corina can buy} \end{array} : \quad 300 \div 4.85 \quad (1) \\ = 61.86 \quad (1)$$

since the question asks for the maximum number of books, we need to take only the integer

≈ 61 (greatest number of books Corina can buy) (1)

61

(Total for Question 1 is 3 marks)

2 A water tank is empty.

Anil needs to fill the tank with 2400 litres of water.

Company **A** supplies water at a rate of 8 litres in 1 minute 40 seconds.

Company **B** supplies water at a rate of 2.2 gallons per minute.

1 gallon = 4.54 litres

Company **A** would take more time to fill the tank than Company **B** would take to fill the tank.

How much more time?

Give your answer in minutes correct to the nearest minute.

Rate of water supply per litre

$$\begin{aligned}\text{Company A} &= 1 \text{ minute } 40 \text{ second} \div 8 \text{ litres} \\ &= \frac{5}{24} \text{ minute per litre}\end{aligned}$$

$$\begin{aligned}\text{Company B} &= 1 \text{ minute} \div (2.2 \times 4.54 \text{ l}) \\ &= \frac{250}{2497} \text{ minute per litre} \quad (1)\end{aligned}$$

Time taken to fill the tank

$$\begin{aligned}\text{Company A} &: \frac{5}{24} \text{ minute per litre} \times 2400 \text{ litre} \\ &= 500 \text{ minutes} \quad (1)\end{aligned}$$

$$\begin{aligned}\text{Company B} &: \frac{250}{2497} \text{ minute per litre} \times 2400 \text{ litre} \\ &= 240.28 \text{ minutes} \quad (1)\end{aligned}$$

(Total for Question 2 is 4 marks)

$$\begin{aligned}\text{Company A} - \text{Company B} \\ &= 500 - 240.28 \\ &= 259.71 \text{ minute} \quad (1) \\ &\approx 260 \text{ minute}\end{aligned}$$

