

$$120 \times 5 = 600 \text{ minutes}$$

$$1 \text{ tap takes } 600 \text{ minutes}$$

$$600 \div 3 = 200 \text{ minutes}$$

..... 200

Each tap fills up pool at the same rate

1. A plane travels at a speed of 213 miles per hour.

(a) Work out an estimate for the number of seconds the plane takes to travel 1 mile.

$$213 \rightarrow 200$$

200 miles per 1 hour  
 200 miles per 60 minutes  
 200 miles per 3600 seconds

$$\downarrow \div 200 \quad \downarrow \div 200$$

$$1 \text{ mile per } 18 \text{ seconds}$$

..... 18 ..... seconds  
 (3)

(b) Is your answer to part (a) an underestimate or an overestimate?  
 Give a reason for your answer.

Overestimate, because we rounded the speed down

(1)

(Total for Question is 4 marks)

$1\text{cm} = 10\text{mm}$

$1\text{cm}^3 = 10^3\text{mm}^3$

$\downarrow \times 87 \quad \downarrow$   
 $37\text{cm}^3 = 37000\text{mm}^3$

37000 ✓

2. Nimer was driving to a hotel.  
 He looked at his Sat Nav at 13 30

Time	13 30
Distance to destination	65 miles

Nimer arrived at the hotel at 14 48

Work out the **average speed** of the car from 13 30 to 14 48

You must show all your working.

13:30

↓ + 1hr

14:30

↓ + 18mins

14:48

time 1hr 18mins ✓ = 1.3hrs ✓

60 mins in 1hr

↓ × 0.3

↓

18 mins = 0.3hrs

$\text{speed} = \frac{\text{distance}}{\text{time}}$

$\text{speed} = \frac{65}{1.3}$  ✓

speed = 50 mph

50 ✓ mph

(Total for Question is 4 marks)

DO NOT WRITE IN THIS AREA

3. Andy cycles a distance of 30 km at an average speed of 24 km/h.  
He then runs a distance of 12 km at an average speed of 8 km/h.

Work out the total time Andy takes.

Give your answer in hours and minutes.

$$\text{Speed} = \frac{\text{distance}}{\text{time}} \quad \therefore \text{time} = \frac{\text{distance}}{\text{Speed}}$$

$$\text{time}_1 = \frac{30}{24} = 1.25 \text{ hours}$$

①

$$\text{time}_2 = \frac{12}{8} = 1.5 \text{ hours}$$

$$\text{Total time} = 1.25 + 1.5 = 2.75 \text{ hours}$$

①

$$2.75 \text{ hours} = 2 \text{ hours and } 0.75 \text{ hours.}$$

$$\begin{array}{l} \times 0.75 \left( \begin{array}{l} 1 \text{ hour} = 60 \text{ minutes} \\ 0.75 \text{ hours} = 45 \text{ minutes} \end{array} \right) \times 0.75 \end{array}$$

$$\therefore 2.75 \text{ hours} = 2 \text{ hours and } 45 \text{ minutes.}$$

①

..... 2 ..... hours ..... 45 ..... minutes

(Total for Question is 3 marks)