

**End of Unit Test**  
**Measures - HIGHER**

Name: Answers



Calculator allowed

1. Which of these is used to work out density? Tick a box.

- mass × volume
- mass<sup>2</sup> × volume
- mass ÷ volume
- volume ÷ mass

$$\frac{M}{D \times V}$$

(Total 1 mark)

2. The table shows information about journeys A and B. Complete the table.

|   | Distance travelled | Time taken        | Average speed |
|---|--------------------|-------------------|---------------|
| A | 32 miles           | 30 mins           | 64 mph        |
| B | 56 miles           | 1 hour 20 minutes | 42 mph        |

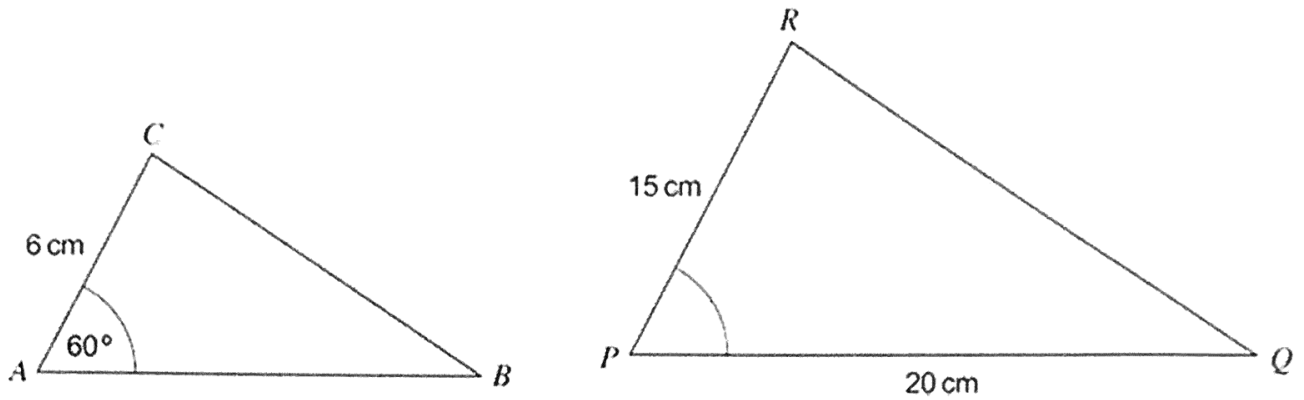
$$\frac{D}{S \times T}$$

A)  $T = \frac{D}{S} = \frac{32}{64} = \frac{1}{2} \text{ hour} = 30 \text{ mins}$

B)  $D = S \times T = \frac{4}{3} \times 42 = 4 \times 14 = 56 \text{ miles}$

(Total 2 marks)

3.  $PQR$  is an enlargement of  $ABC$ . Not drawn accurately.



- (a) Work out the scale factor of the enlargement.

$$15 \div 6 = 2.5$$

Answer ..... 2.5 ..... (1)

- (b) Write down the size of angle  $P$ .

Answer ..... 60 ..... degrees (1)

- (c) Work out the length  $AB$ .

$$20 \div 2.5 = 8$$

Answer ..... 8 ..... cm (2)

(Total 4 marks)

4. These two solid shapes are similar. Not drawn accurately.



The volume of  $A$  is  $1400 \text{ cm}^3$ . Work out the volume of  $B$ .

$$\text{Length scale factor} = \frac{15}{12} = \frac{5}{4}$$

$$\text{Volume of } B = 1400 \times \left(\frac{5}{4}\right)^3 = 2734.375$$

Answer ..... 2734.375 .....  $\text{cm}^3$  (Total 3 marks)

5. Three items were bought at a car boot sale.

Item A  
Mass = 9.5 grams  
Volume = 2 cm<sup>3</sup>

Item B  
Mass = 57 grams  
Volume = 3 cm<sup>3</sup>

Item C  
Mass = 76 grams  
Volume = 4 cm<sup>3</sup>

The density of gold is **approximately** 19 grams per cm<sup>3</sup>. Which item or items **cannot** be gold? You **must** show your working.

$$\text{Item A} = \frac{9.5}{2} = 4.75 \text{ g/cm}^3 \quad \times$$

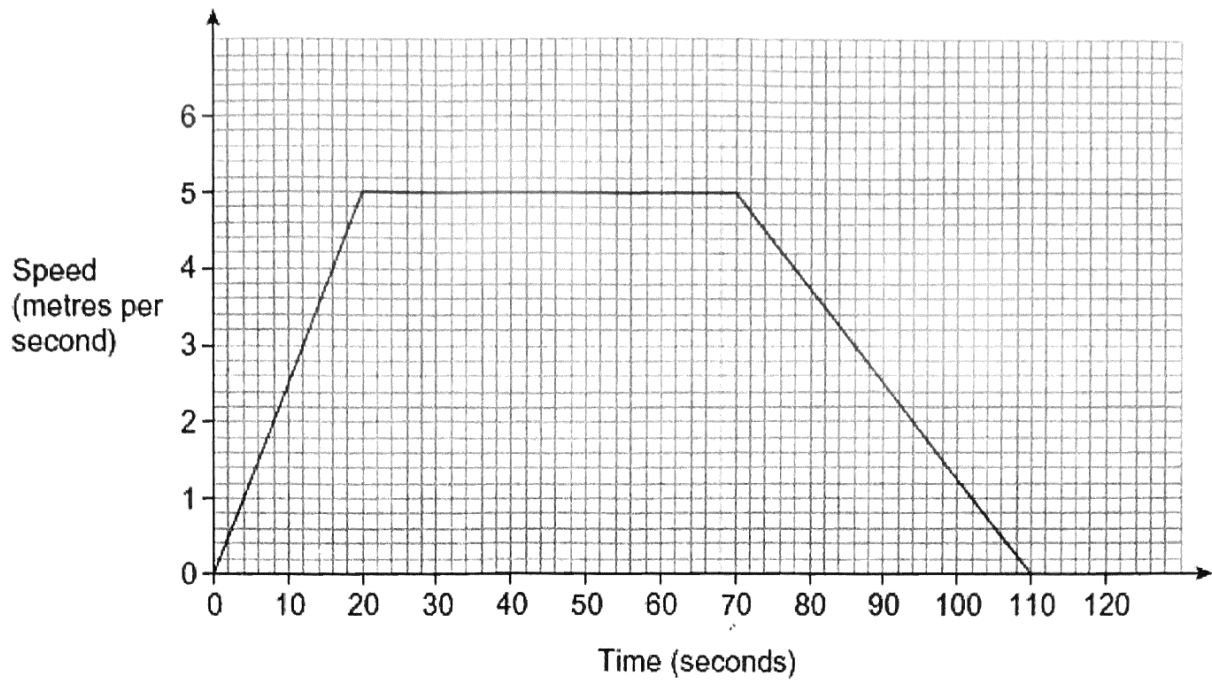
$$\text{Item B} = \frac{57}{3} = 19 \text{ g/cm}^3 \quad \checkmark$$

$$\text{Item C} = \frac{76}{4} = 19 \text{ g/cm}^3 \quad \checkmark$$

Answer Item A.

(Total 4 marks)

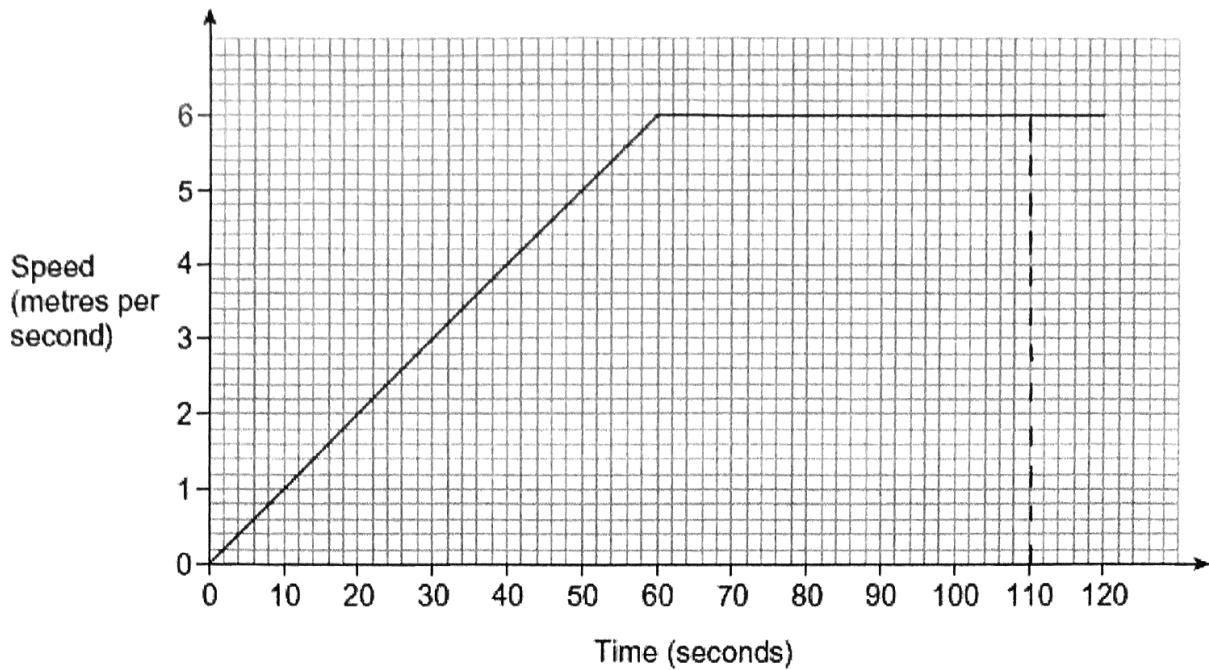
6. The distance around a cycle track is 400 metres. Robin cycles on the track. Here is his speed-time graph.



- (a) Show that Robin cycles **exactly** once around the track in 110 seconds.

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times (50 + 110) \times 5 \\ &= \frac{1}{2} \times 160 \times 5 \\ &= 80 \times 5 \\ &= 400\text{m covered.} \end{aligned}$$

(b) Sanjay cycles on the same track. Here is his speed-time graph.



Does Sanjay cycle the first 400 metres in a quicker time than Robin? You **must** show your working.

Robin took 110 seconds.  
Area =  $\frac{1}{2} \times (50 + 110) \times 6$   
 $= \frac{1}{2} \times 160 \times 6$   
 $= 80 \times 6$   
 $= 480 \text{ m covered.}$

Sanjay covered more distance in the same amount of time, therefore cycled the 400m faster.

(3)  
(Total 6 marks)

(Total for test = 20 marks)