

TGAU - Numeracy and Mathematics
Topic: Compound measures

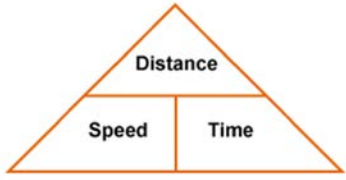
Tier: Intermediate

Grade: B

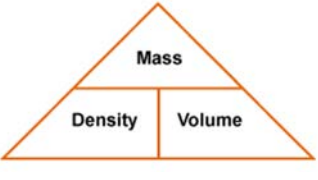
Starter:

- Which is heavier, a tonne of bricks or a tonne of feathers? What is the meaning of density?
- Aled travelled at an average speed of 45m.p.h on a 3 hour journey. How far did he travel?

Top tips! LEARN THESE!



Speed = Distance ÷ Time
 Time = Distance ÷ Speed
 Distance = Speed x Time



Density = Mass ÷ Volume
 Volume = Mass ÷ Density
 Mass = Density x Volume

Also: Population density = Population ÷ Area

Skills:

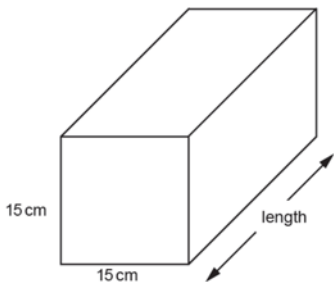
- Write the following times as decimals:

Hours and minutes	Hours as a decimal
2 hours 45 minutes	2.75
5 hours 30 minutes	
1 hours 15 minutes	
2 hours 12 minutes	

- Alun travelled 202.5 miles from Llangefni to Cardiff. He departed at 13:15 and arrived at 17:45. What was his average speed during the journey?
- According to the 2011 census, Wales had a population of 3 063 456 people. Wales has an area of 20 779km². What was the population density of Wales in 2011?

Cwestiwn Arholiad:

2015 June Unitised Unit 3 Higher Tier Q13



The solid block shown above is made from a metal that has a density of 2.7 g/cm³. The volume of the solid block is 40 500 cm³. A hole is drilled through the entire length of the block. The hole has a cross-sectional area of 25 cm². Calculate the mass of the block that remains. [6]

Asesu ar gyfer Dysgu

Fideo / Còd QR

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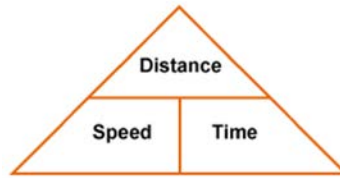
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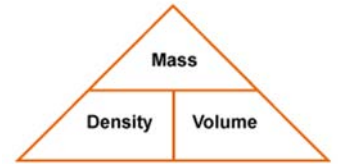
Starter:

- Which is heavier, a tonne of bricks or a tonne of feathers? What is the meaning of density? **Tonne of bricks. Density is a measure of how much mass an object has per unit volume.**
- Aled travelled at an average speed of 45m.p.h on a 3 hour journey. How far did he travel?
 $D = 45 \times 3 = 135$ miles

Top tips! LEARN THESE!



$$\begin{aligned} \text{Speed} &= \text{Distance} \div \text{Time} \\ \text{Time} &= \text{Distance} \div \text{Speed} \\ \text{Distance} &= \text{Speed} \times \text{Time} \end{aligned}$$



$$\begin{aligned} \text{Density} &= \text{Mass} \div \text{Volume} \\ \text{Volume} &= \text{Mass} \div \text{Density} \\ \text{Mass} &= \text{Density} \times \text{Volume} \end{aligned}$$

Also: Population density = Population \div Area

Skills:

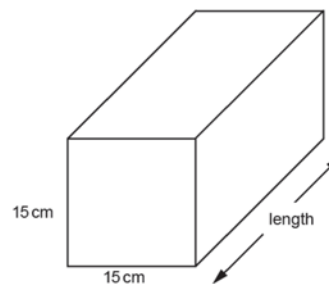
- Write the following times as decimals:

Hours and minutes	Hours as a decimal
2 hours 45 minutes	2.75
5 hours 30 minutes	5.5
1 hours 15 minutes	1.25
2 hours 12 minutes	2.2

- Alun travelled 202.5 miles from Llangefni to Cardiff. He departed at 13:15 and arrived at 17:45. What was his average speed during the journey?
 $S = \frac{202.5}{4.5} = 45$ mph
- According to the 2011 census, Wales had a population of 3 063 456 people. Wales has an area of 20 779km². What was the population density of Wales in 2011?
 $3063456 \div 20779 = 147.43$ (2.d.p)

Cwestiwn Arholiad:

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The solid block shown above is made from a metal that has a density of 2.7 g/cm³. The volume of the solid block is 40 500 cm³. A hole is drilled through the entire length of the block. The hole has a cross-sectional area of 25 cm². Calculate the mass of the block that remains. [6]

$$40500 = 15 \times 15 \times \text{length}$$

$$40500 = 225 \times \text{length}$$

$$\text{Length if block} = 180\text{cm}$$

$$\text{Volume of hole} = 25 \times 180 = 4500\text{cm}^3$$

$$40500 - 4500 = 36000$$

$$\text{Mass} = 2.7 \times 36000 = 97,200\text{g}$$

Asesu ar gyfer Dysgu

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