

Surname	
Other Names	
Candidate's Signature	

GCSE 9 - 1 Questions

Compound Measures

Calculator Allowed

INSTRUCTIONS TO CANDIDATES

Write your name in the space provided.

Write your answers in the spaces provided in this question paper.

Answer ALL questions.

Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.

You should have a ruler, compass and protractor where required.

Total Marks :

1) The table below gives the density of 3 metals.

Metal	Density
Platinum	21.4 g/cm ³
Gold	19.3 g/cm ³
Silver	10.5 g/cm ³

Density can also be measured in 'troy ounces/cubic inch'.
The density of gold is 10.13 troy ounces/cubic inch.
Calculate the density of platinum in troy ounces/cubic inch.

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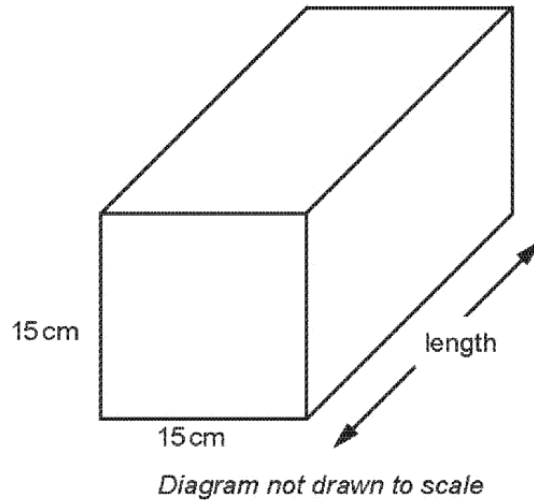
Platinum = troy ounces/cubic inch.

[2]

2) Garry drove to work at an average speed of 45 miles per hour.
What is this speed in kilometres per hour?

Answer _____ km/hr [2]

3)



The solid block shown above is made from a metal that has a density of 2.7 g/cm^3 .
The volume of the solid block is 40500 cm^3 .

A hole is drilled through the entire length of the block.
The hole has a cross-sectional area of 25 cm^2 .
Calculate the mass of the block that remains.

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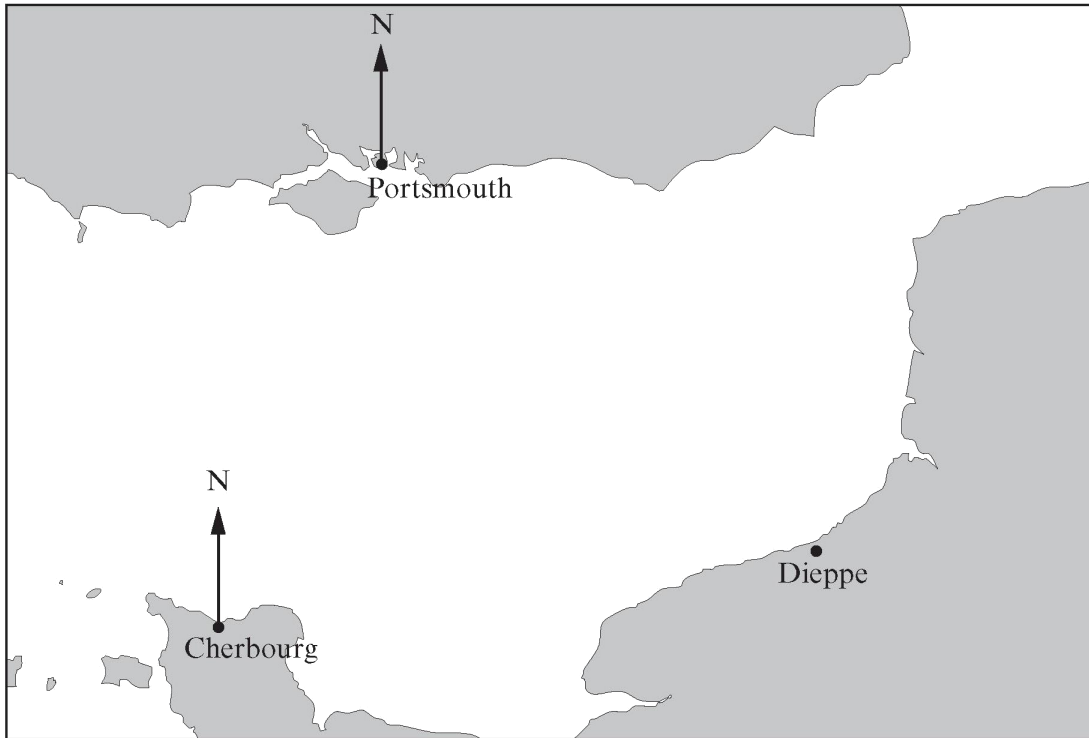
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4) The map shows a scale diagram of part of the English Channel.

Scale : 1 cm represents 20 km



(a) A ship is on a bearing of 058° from Cherbourg and on a bearing of 135° from Portsmouth. By drawing suitable lines on the diagram above, find and mark the position of the ship. [3]

(b) At this position, a motor boat is lowered from the ship into the sea. The motor boat, travelling in a straight line, arrives at Dieppe 4 hours later. Calculate the average speed of the motor boat in kilometres per hour.

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[3]

5) An ambulance travels 315 miles in 4 hours 30 minutes. At what average speed does it travel?

Answer _____ mph [3]

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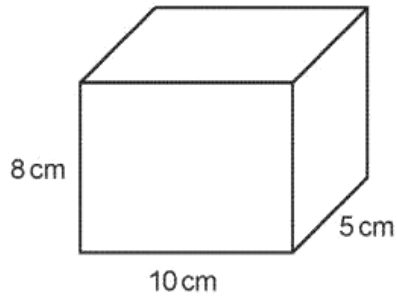


Diagram not drawn to scale

A cuboid made of metal has dimensions 10 cm, 8 cm and 5 cm. The mass of the cuboid is 1.1 kg. Calculate the density of the metal. State the units of your answer. [4]

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7) A snail travels at an average speed of 4.2×10^{-2} m/s. How long will it take to travel a distance of 1.5 km?

Give your answer to an appropriate degree of accuracy.

Answer _____ [3]

- 8) Ifan is sitting in his parents' car as they travel on the motorway.
The car is travelling at a steady speed of 90 km/h.
Using his watch, Ifan measures the time it takes to travel between two bridges.
The time taken is 10 seconds.

How far apart are the two bridges?
Give your answer in metres.

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- 9) Sian is driving along a road in Germany, which has a speed limit of 80 km per hour.
She is driving at 55 mph.

By how much is her speed above or below the speed limit?

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[3]

- 10) Kevin drove from Newcastle to Swindon, a distance of 273 miles.
He started his journey at 9:15 a.m. and arrived in Swindon at 4:15 p.m.

(a) Calculate his average speed for the journey.

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[3]

On average, his car uses one gallon of diesel per 40 miles travelled.
A gallon of diesel costs approximately £6.30.

(b) Find an estimate, to the nearest £, of how much it cost him for the diesel used on the journey.

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[2]

- 11) The base for a statue is a prism with a cross-section whose area is 1.23 m^2 .

The base is 1 metre in height and weighs 2268 kg.

Calculate the density of the prism.

Answer _____ kg/m^3 [3]

- 13) At an average speed of 80 km/h, it would take approximately 90 years to travel over the entire road network of the world.
Use this information to calculate the approximate length of the road network of the world in kilometres.
Give your answer in standard form, correct to 2 significant figures. [3]

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- 14) Mary leaves home for work at 0730 and returns home at 1520
(a) Work out how long Mary is away from home.

Answer _____ hr _____ min [2]

Mary travels 10 miles to work.

- (b) She takes $\frac{1}{2}$ an hour to get to work. What is her average speed in miles per hour?

Answer _____ mph [2]

- (c) Approximately how many kilometres does Mary travel to work?

Answer _____ km [2]

18)

The diagram below shows the uniform cross-section of a metal beam.

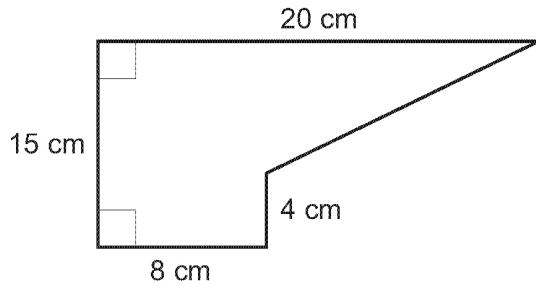


Diagram not drawn to scale

- (a) You will be assessed on the quality of your written communication in this part of the question.

Calculate the area of the cross-section.
You must show your working.

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- (b) The length of the metal beam is 2 m and its mass is 108 kg.
Calculate the density of the metal, giving your answer in g/cm^3 .

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