Density

Physics Paper 1 calculations | AQA Combined Science 8464 and AQA GCSE Physics 8463 | 14 questions, 38 marks

GCSE science calculations

Scan for the solutions

Equations for this topic (cover this box to practise recalling them)

- density = $\frac{\text{mass}}{\text{volume}}$ learn this one

Name: _____ **Date:** _____ **Score:** _____ **/ 38**

1 A block of aluminium has a mass of 5.4 kg and a volume of 0.002 m^3.

Calculate the density of aluminium.

(2 marks)

Answer _____

2 A bottle contains 0.0005 m^3 of olive oil. The mass of the olive oil is 0.46 kg.

Calculate the density of the olive oil.

(2 marks)

Answer _____

3 Kofi finds a pebble on a beach in Cornwall. The pebble has a mass of 39 g and a volume of 15 cm^3.

Calculate the density of the pebble in g/cm^3.

(2 marks)

Answer _____

4 The density of copper is 8.96 g/cm^3.

1 g/cm^3 = 1000 kg/m^3

Write the density of copper in kg/m^3.

(2 marks)

Answer _____

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

5 A wooden block measures 20 cm by 10 cm by 5.0 cm. Its mass is 0.60 kg.

Calculate the density of the wood in kg/m^3.

(3 marks)

Answer _____

6 In a Year 10 practical, Sofia finds the density of a small stone.

- The mass of the stone is 60.0 g.
- The water in a measuring cylinder is at 50 cm^3.
- When the stone is lowered into the water, the level rises to 74 cm^3.

Calculate the density of the stone in kg/m^3.

1 g/cm^3 = 1000 kg/m^3

(3 marks)

Answer _____

7 A fish tank holds 0.12 m^3 of water. The density of water is 1000 kg/m^3.

Calculate the mass of the water in the tank.

(2 marks)

Answer _____

8 A builder buys a 25 kg bag of dry sand. The density of the sand is 1600 kg/m^3.

Calculate the volume of the sand.

Give your answer to 2 significant figures.

(3 marks)

Answer _____

9 A lab technician needs 250 g of ethanol. The density of ethanol is 0.79 g/cm^3.

Calculate the volume of ethanol needed in cm^3.

Give your answer to 3 significant figures.

(2 marks)

Answer _____

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

10 Mr Okafor gives his class a metal block that measures 4.0 cm by 3.0 cm by 2.5 cm. The mass of the block is 267 g.

Metal	Density in kg/m^3
aluminium	2700
iron	7900
copper	8900
lead	11 300

a. Calculate the density of the block in kg/m^3. 1 g/cm^3 = 1000 kg/m^3. Show your working.

b. Use the table to identify the metal.

(4 marks)

Answer _____

11 A classroom is 8.0 m long, 6.0 m wide and 3.0 m high. The density of air is 1.2 kg/m^3.

Calculate the mass of air in the classroom.

Give your answer to 2 significant figures. Show your working.

(3 marks)

Answer _____

12 Haruto lowers a rock into a eureka can full of water. The water that overflows is collected in a measuring cylinder. 135 cm^3 of water is collected.

The mass of the rock is 0.351 kg.

a. Write the volume of the rock in m^3, in standard form.

b. Calculate the density of the rock in kg/m^3. Show your working.

(4 marks)

Answer _____

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

13 Ana finds the density of salt water.

- The mass of an empty beaker is 112 g.
- She pours 250 cm^3 of salt water into the beaker.
- The mass of the beaker and the salt water is now 370 g.

Calculate the density of the salt water in g/cm^3.

(3 marks)

Answer _____

14 A concrete paving slab measures 0.60 m by 0.60 m by 0.050 m. The slab has a mass of 41.4 kg and a weight of 406 N.

Calculate the density of the concrete. Show your working.

(3 marks)

Answer _____

End of questions | Total 38 marks

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.