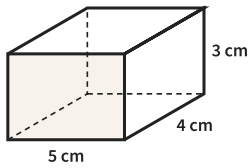


Volume and density

1

The metal block has a density of 8 g/cm^3 . Find its mass.



$$\text{Volume } 5 \times 4 \times 3 = 60 \text{ cm}^3$$

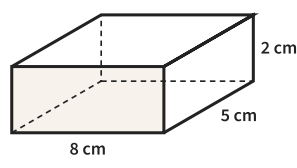
$$1 \text{ cm}^3 \text{ has a mass of } 8 \text{ g}$$

$$\text{Mass } 60 \times 8 = 480 \text{ g}$$

Answer 480 g

2

The metal block has a density of 2.5 g/cm^3 . Find its mass.



$$\text{Volume } 8 \times 5 \times 2 = 80 \text{ cm}^3$$

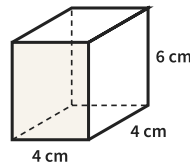
$$1 \text{ cm}^3 \text{ has a mass of } 2.5 \text{ g}$$

$$\text{Mass } 80 \times 2.5 = 200 \text{ g}$$

Answer 200 g

3

The metal block has a density of 11.3 g/cm^3 . Find its mass.



$$\text{Volume } 4 \times 4 \times 6 = 96 \text{ cm}^3$$

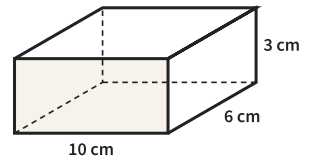
$$1 \text{ cm}^3 \text{ has a mass of } 11.3 \text{ g}$$

$$\text{Mass } 96 \times 11.3 = 1084.8 \text{ g}$$

Answer 1084.8 g

4

The metal block has a density of 0.7 g/cm^3 . Find its mass.

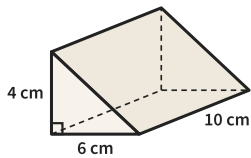


$$\text{Mass } 180 \times 0.7 = 126 \text{ g}$$

Answer 126 g

5

The prism is made of aluminium, density 2.7 g/cm^3 . Find its mass.

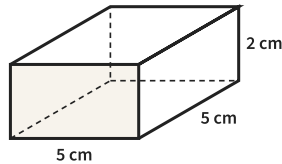


$$\text{area of the triangle } 12 \text{ cm}^2, \text{ volume } 120 \text{ cm}^3$$

Answer 324 g

6

A block 5 cm by 5 cm by 2 cm has a mass of 395 g. Find its density.

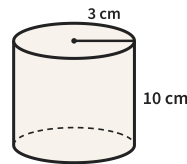


$$395 \text{ g for } 50 \text{ cm}^3, \text{ so } 395 \div 50 \text{ for } 1 \text{ cm}^3$$

Answer 7.9 g/cm³

7

The plastic cylinder has a density of 1.2 g/cm^3 . Find its mass to 1 decimal place.

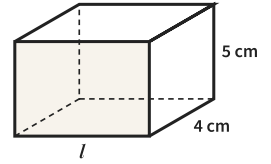


$$\text{volume } \pi \times 3^2 \times 10 = 282.74 \text{ cm}^3$$

Answer 339.3 g

8

This brass bar has a mass of 1120 g and a density of 8 g/cm^3 . Find its length l .



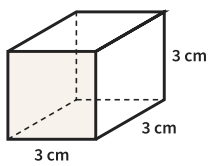
$$\text{volume } 1120 \div 8 = 140 \text{ cm}^3, \text{ then } 140 \div 20$$

Answer 7 cm

Volume and density further practice

9

A gold cube has sides of 3 cm. Gold has a density of 19.3 g/cm^3 . Find the mass of the cube.

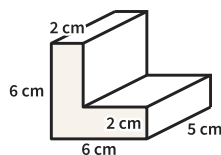


$$\text{volume } 27 \text{ cm}^3$$

Answer 521.1 g

10

This steel prism has an L shaped cross section. Steel has a density of 7.8 g/cm^3 . Find its mass.



$$\text{cross section } 20 \text{ cm}^2, \text{ volume } 100 \text{ cm}^3$$

Answer 780 g

11

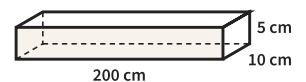
Block A is 4 cm by 3 cm by 2 cm, made of copper (8.9 g/cm^3). Block B is 5 cm by 5 cm by 2 cm, made of aluminium (2.7 g/cm^3). Which is heavier, and by how much?

$$A \text{ } 213.6 \text{ g}, B \text{ } 135 \text{ g}$$

Answer A, by 78.6 g

12

A steel beam is 200 cm long, 10 cm wide and 5 cm tall. Steel has a density of 7.8 g/cm^3 . Find its mass in kilograms.

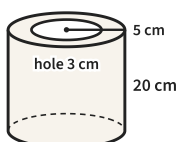


$$10\,000 \text{ cm}^3, \text{ so } 78\,000 \text{ g}$$

Answer 78 kg

13

An aluminium pipe is 20 cm long. Its radius is 5 cm and the hole has radius 3 cm. Aluminium has a density of 2.7 g/cm^3 . Find the mass of the pipe to the nearest gram.

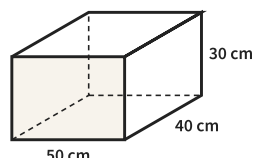


$$\pi \times (25 - 9) \times 20 = 1005.3 \text{ cm}^3$$

Answer 2714 g

14

Water has a density of 1 g/cm^3 . A fish tank 50 cm by 40 cm by 30 cm is filled with water. What is the mass of the water in kilograms?

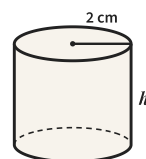


$$60\,000 \text{ cm}^3 \text{ is } 60\,000 \text{ g}$$

Answer 60 kg

15

A metal cylinder has radius 2 cm, a density of 8.5 g/cm^3 and a mass of 1068 g. Find its height to 1 decimal place.

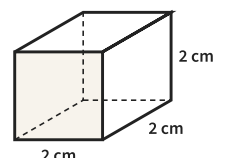


$$\text{volume } 1068 \div 8.5 = 125.6 \text{ cm}^3, \text{ then } \div 4\pi$$

Answer 10.0 cm

16

A gold coloured cube has sides of 2 cm and a mass of 70 g. Gold has a density of 19.3 g/cm^3 . Is the cube made of gold? Explain.



$$70 \text{ g for } 8 \text{ cm}^3$$

Answer No, 8.75 g/cm^3