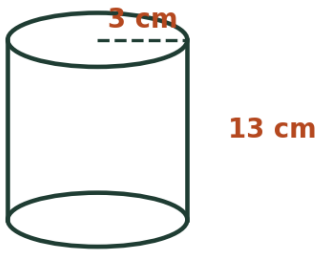
Cylinders

Grade 4 topic · Foundation and Higher · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Foundation students: aim for Questions 1–15 (59 marks) and have a go at the rest. Higher students: complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 84 marks.

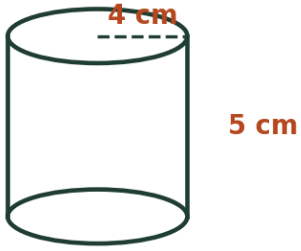
Warm-up

1 Work out the volume of the cylinder. Give your answer in terms of π. **[3 marks]**



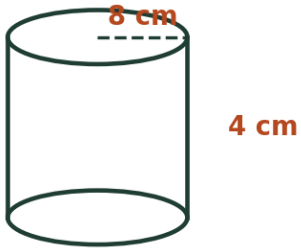
Answer _____

2 Work out the volume of the cylinder to 3 significant figures. **[3 marks]**



Answer _____

3 Work out the curved surface area of the cylinder in terms of π. **[3 marks]**



Answer _____

4 A cylinder has radius 6 cm and height 5 cm. Work out the area of one circular end in terms of π. **[2 marks]**

Answer _____

5 A cylinder has diameter 18 cm and height 7 cm. Work out its volume in terms of π. **[3 marks]**

Answer _____

Core

6 A cylinder has radius 6 cm and height 10 cm. Work out its total surface area to 3 significant figures. **[4 marks]**

Answer _____

7 A cylindrical can has radius 6 cm and height 8 cm. How many millilitres of soup does it hold (1 cm^3 = 1 ml)? Give your answer to the nearest whole number. **[4 marks]**

Answer _____

8 A cylinder has volume 125π cm^3 and radius 5 cm. Work out its height. **[4 marks]**

Answer _____

9 A cylinder has volume 175π cm^3 and height 7 cm. Work out its radius. **[4 marks]**

Answer _____

10 The label on a can covers its curved surface. The can has radius 7 cm and height 10 cm. Work out the area of the label, to 3 significant figures. **[4 marks]**

Answer _____

Stretch

11 A cylindrical tank has radius 30 cm and height 100 cm. How many litres does it hold? Give your answer to 3 significant figures. (1 litre = 1000 cm^3) **[5 marks]**

Answer _____

12 A cylinder has radius 4 cm and height 11 cm. Its radius is doubled. Work out the ratio of the new volume to the old volume. **[5 marks]**

Answer _____

13 A pipe has internal radius 7 cm and length 110 cm. How much water does it hold, in litres to 3 s.f.? **[5 marks]**

Answer _____

14 A solid metal cylinder has radius 5 cm and height 7 cm. It is melted and made into a cylinder with radius 10 cm. Work out the new height. **[5 marks]**

Answer _____

15 The curved surface area of a cylinder is 100π cm^2 and its radius is 5 cm. Work out its volume in terms of π. **[5 marks]**

Answer _____

Challenge

16 A hollow cylinder (a pipe) has external radius 6 cm, internal radius 5 cm and length 7 cm. Work out the volume of the material, in terms of π. **[5 marks]**

Answer _____

17 Water flows at 2 cm per second along a pipe of radius 7 cm. How many cm^3 flow out in 1 minute? Give your answer in terms of π. **[5 marks]**

Answer _____

18 A cylinder has height equal to its diameter. Its volume is 54π cm^3. Work out its radius. **[5 marks]**

Answer _____

19 A cone and a cylinder have the same radius 9 cm and height 14 cm. Work out the volume of the cylinder minus the volume of the cone in terms of π. **[5 marks]**

Answer _____

20 A cylinder has radius 8 cm and volume 1000 cm³. Work out its height to 3 significant figures. **[5 marks]**

Answer _____