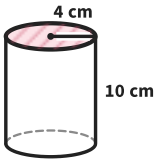


Volume of Cylinders and Compound Solids

ANSWERS 

1

Work out the volume of this cylinder.
Give your answer to 1 decimal place.



$$\text{Area of cross-section} = \pi \times r^2$$

$$\pi \times 4^2 = 50.265... \text{ cm}^2$$

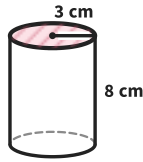
$$\text{Volume} = \text{area} \times \text{length}$$

$$50.265... \times 10 = 502.7 \text{ cm}^3$$

Answer 502.7 cm³

2

Work out the volume of this cylinder.
Give your answer to 1 decimal place.



$$\text{Area of cross-section} = \pi \times r^2$$

$$\pi \times 3^2 = 28.274... \text{ cm}^2$$

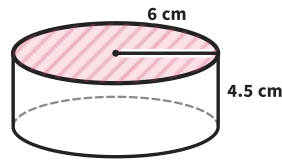
$$\text{Volume} = \text{area} \times \text{length}$$

$$28.274... \times 8 = 226.2 \text{ cm}^3$$

Answer 226.2 cm³

3

Work out the volume of this cylinder.
Give your answer to 1 decimal place.



$$\text{Area of cross-section} = \pi \times r^2$$

$$\pi \times 6^2 = 113.097... \text{ cm}^2$$

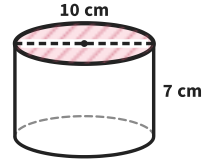
$$\text{Volume} = \text{area} \times \text{length}$$

$$113.097... \times 4.5 = 508.9 \text{ cm}^3$$

Answer 508.9 cm³

4

Work out the volume of this cylinder.
Give your answer to 1 decimal place.



$$\text{Area of cross-section} = \pi \times r^2$$

$$r = 5, \pi \times 5^2 = 78.539... \text{ cm}^2$$

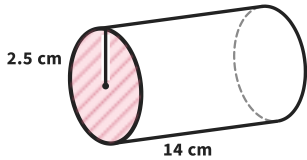
$$\text{Volume} = \text{area} \times \text{length}$$

$$78.539... \times 7 = 549.8 \text{ cm}^3$$

Answer 549.8 cm³

5

A tube of sweets is a cylinder lying on its side. Work out its volume. Give your answer to 1 decimal place.



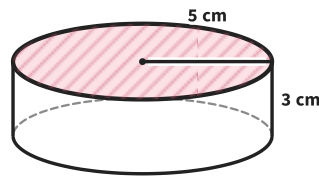
$$\pi \times 2.5^2 = 19.634... \text{ cm}^2$$

$$19.634... \times 14 = 274.9 \text{ cm}^3$$

Answer 274.9 cm³

6

Work out the volume of this cylinder.
Give your answer in terms of π .



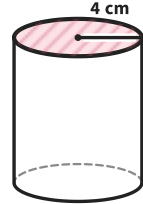
$$\pi \times 5^2 = 25\pi \text{ cm}^2$$

$$25\pi \times 3 = 75\pi \text{ cm}^3$$

Answer $75\pi \text{ cm}^3$

7

This cylinder has a volume of 477.5 cm³.
Work out its height. Give your answer to 1 decimal place.



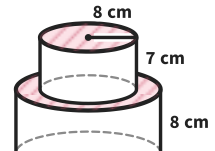
$$\pi \times 4^2 = 50.265... \text{ cm}^2$$

$$477.5 \div 50.265... = 9.5 \text{ cm}$$

Answer 9.5 cm

8

A cake has two tiers. Each tier is a cylinder.
The bottom tier has a radius of 12 cm.
Work out the volume of the cake.
Give your answer to 1 decimal place.



$$\pi \times 12^2 \times 8 + \pi \times 8^2 \times 7$$

$$3619.11... + 1407.43... = 5026.5 \text{ cm}^3$$

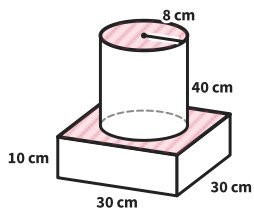
Answer 5026.5 cm³

Volume of Cylinders and Compound Solids *further practice*

ANSWERS 

9

A statue stands on a plinth. The plinth is a cuboid with a cylinder on top. Work out its volume. Give your answer to 1 decimal place.

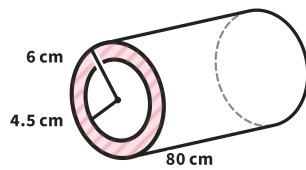


$$30 \times 30 \times 10 + \pi \times 8^2 \times 40$$

Answer 17 042.5 cm³

10

A concrete pipe has an outer radius of 6 cm and an inner radius of 4.5 cm.
Work out the volume of concrete.
Give your answer to 1 decimal place.

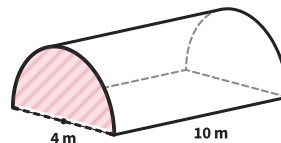


$$\pi \times 6^2 \times 80 - \pi \times 4.5^2 \times 80$$

Answer 3958.4 cm³

11

A polytunnel is half a cylinder.
Its cross-section is a semicircle with a diameter of 4 m. Work out the volume inside it. Give your answer to 1 decimal place.

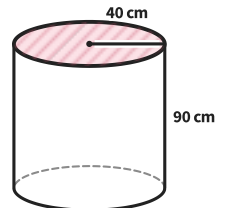


$$\frac{1}{2} \times \pi \times 2^2 \times 10 = 6.283... \text{ m}^2 \times 10$$

Answer 62.8 m³

12

A water tank is a cylinder. How many litres does it hold when it is full?
Give your answer to 1 decimal place. (1000 cm³ = 1 litre)

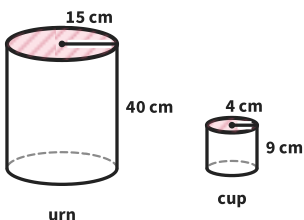


$$\pi \times 40^2 \times 90 = 452 389.342... \text{ cm}^3$$

Answer 452.4 litres

13

A full urn of soup is poured into cups.
How many cups can be filled to the top?

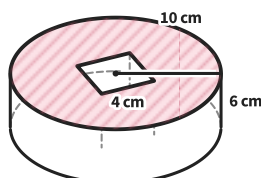


$$28 274.333... \div 452.389... = 62.5$$

Answer 62 cups

14

A wooden wheel is a cylinder with a square hole cut through the middle.
The radius of the wheel is 10 cm.
Work out the volume of wood.
Give your answer to 1 decimal place.

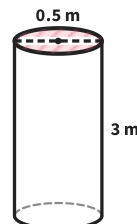


$$\pi \times 10^2 \times 6 - 4 \times 4 \times 6$$

Answer 1789.0 cm³

15

Each pillar is a cylinder made of concrete.
Concrete costs £90 per m³. Work out the cost of the concrete for 4 pillars.

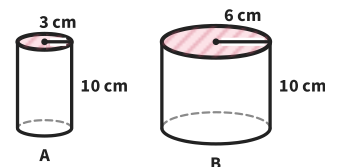


$$\pi \times 0.25^2 \times 3 \times 4 = 2.356... \text{ m}^3 \times 90$$

Answer £212.06

16

Sam doubles the radius of cylinder A to make cylinder B. He says, "The volume doubles." Is Sam right? Explain.



$$A = 90\pi, B = 360\pi = 4 \times 90\pi$$

Answer No, 4 times as big