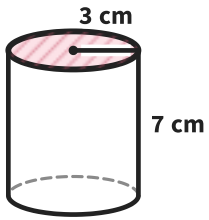
Volume of Cylinders

ANSWERS

1

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



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

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

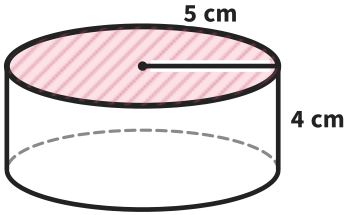
Volume = area × height

$28.274... \times 7 = 197.9 \text{ cm}^3$

Answer 197.9 cm^3

2

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



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

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

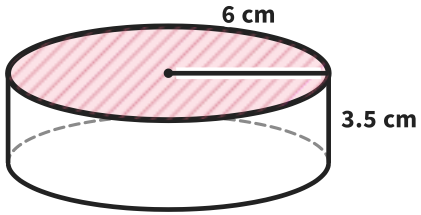
Volume = area × height

$78.539... \times 4 = 314.2 \text{ cm}^3$

Answer 314.2 cm^3

3

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



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

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

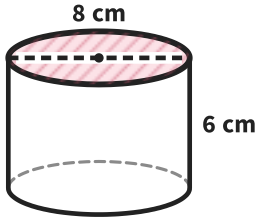
Volume = area × height

$113.097... \times 3.5 = 395.8 \text{ cm}^3$

Answer 395.8 cm^3

4

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



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

$r = 4, \pi \times 4^2 = 50.265...$

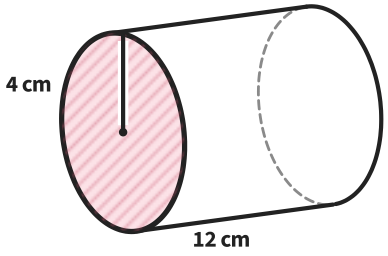
Volume = area × height

$50.265... \times 6 = 301.6 \text{ cm}^3$

Answer 301.6 cm^3

5

This cylinder is lying on its side.
Work out its volume. Give your answer to 1 decimal place.



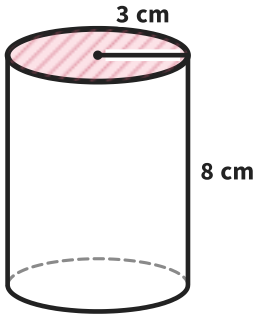
$\pi \times 4^2 = 50.265... \text{ cm}^2$

$50.265... \times 12 = 603.2 \text{ cm}^3$

Answer 603.2 cm^3

6

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



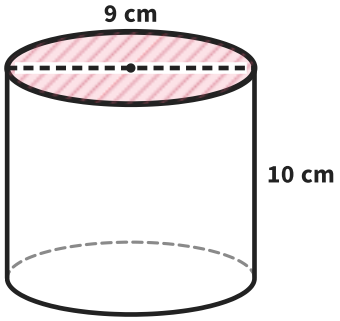
$\pi \times 3^2 = 9\pi$

$9\pi \times 8 = 72\pi$

Answer $72\pi \text{ cm}^3$

7

Work out the volume of this cylinder.
Give your answer to 2 decimal places.



$r = 4.5, \pi \times 4.5^2 = 63.617...$

$63.617... \times 10 = 636.17 \text{ cm}^3$

Answer 636.17 cm^3

8

This cylinder has a diameter of 10 cm and a height of 7 cm. Ben works out $\pi \times 10^2 \times 7 = 2199.1 \text{ cm}^3$.
Explain Ben's mistake, then work out the volume. Give your answer to 1 decimal place.

10 is the diameter: the radius is 5

$\pi \times 5^2 \times 7$

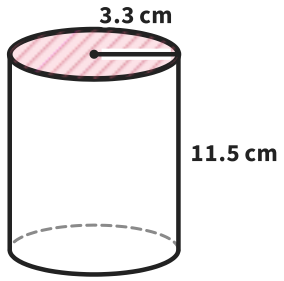
Answer 549.8 cm^3

Volume of Cylinders *further practice*

ANSWERS

9

A drinks can is a cylinder with a radius of 3.3 cm and a height of 11.5 cm.
Work out its volume. Give your answer to 1 decimal place.

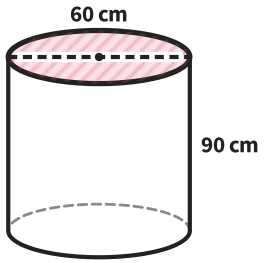


$\pi \times 3.3^2 \times 11.5$

Answer $393.4\ cm^3$

10

A water butt is a cylinder with a diameter of 60 cm and a height of 90 cm.
How many litres does it hold when it is full? Give your answer to 1 decimal place. (1000 cm^3 = 1 litre)

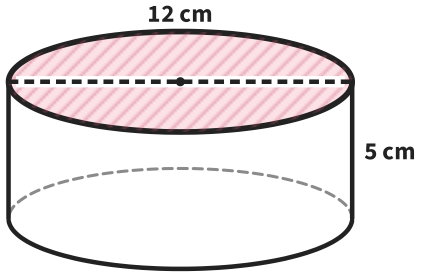


$\pi \times 30^2 \times 90 = 254\,469.0\ldots\ cm^3$

Answer 254.5 litres

11

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



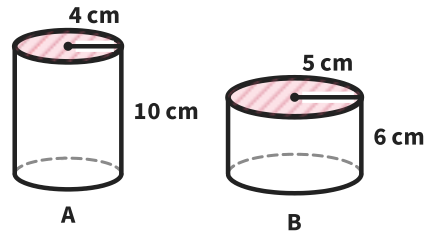
$r = 6, \pi \times 6^2 = 36\pi$

$36\pi \times 5$

Answer $180\pi\ cm^3$

12

Which cylinder holds more, A or B?
By how much? Give your answer to 1 decimal place.



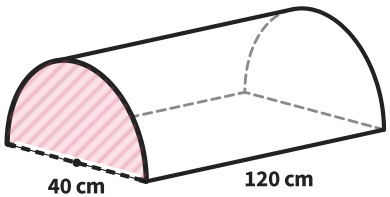
$A: \pi \times 4^2 \times 10 = 160\pi$

$B: \pi \times 5^2 \times 6 = 150\pi$

Answer A, by $31.4\ cm^3$

13

A water trough is half a cylinder.
The semicircle has a diameter of 40 cm and the trough is 120 cm long.
Work out its volume. Give your answer to 1 decimal place.

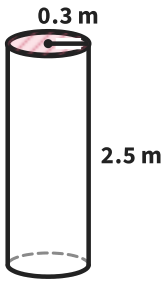


$\frac{1}{2} \times \pi \times 20^2 \times 120$

Answer $75\,398.2\ cm^3$

14

A concrete pillar is a cylinder with a radius of 0.3 m and a height of 2.5 m.
Work out the volume of concrete in m^3.
Give your answer to 2 decimal places.



$\pi \times 0.3^2 \times 2.5$

Answer $0.71\ m^3$

15

A jug is a cylinder with a radius of 7 cm and a height of 20 cm. A glass is a cylinder with a radius of 3.5 cm and a height of 10 cm.
The jug is full. How many glasses can it fill?

$jug: \pi \times 7^2 \times 20 = 980\pi$

$glass: \pi \times 3.5^2 \times 10 = 122.5\pi$

Answer 8 glasses

16

Cylinder A has a radius of 2 cm and a height of 10 cm. Cylinder B has a radius of 10 cm and a height of 2 cm. Mia says they have the same volume, because they use the same numbers. Is Mia right? Explain.

$A = 40\pi\ cm^3, B = 200\pi\ cm^3$

the radius is squared, the height is not

Answer No, B is 5 times A