

Volume

N5 Maths Exam Questions

Volume of a sphere

$$V = \frac{4}{3}\pi r^3$$

Volume of a cone

$$V = \frac{1}{3}\pi r^2 h$$

Volume of a pyramid

$$V = \frac{1}{3}Ah$$

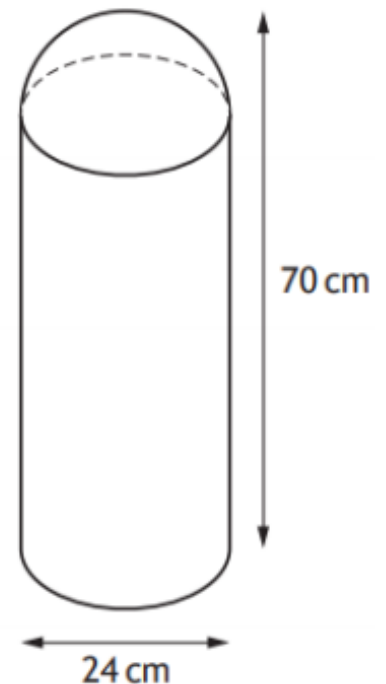
Source: 2019 P2 Q8 N5 Maths

(1)

A traffic bollard is in the shape of a cylinder with a hemisphere on top.

The bollard has

- diameter 24 centimetres
- height 70 centimetres.



Calculate the volume of the bollard.

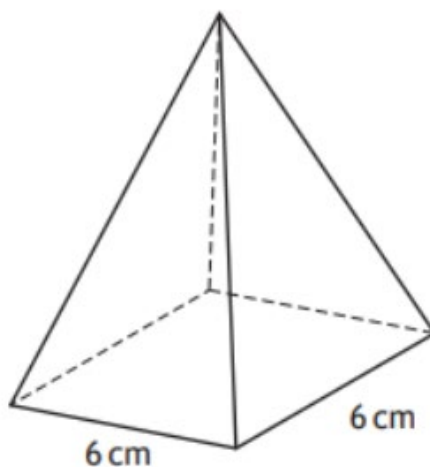
Give your answer correct to 3 significant figures.

Answer: $Volume = 29\,900\text{ cm}^3$ (3 significant figures)

Source: 2018 P1 Q17 N5 Maths

(2)

A square based pyramid is shown in the diagram below.



The square base has length 6 centimetres.

The volume is 138 cubic centimetres.

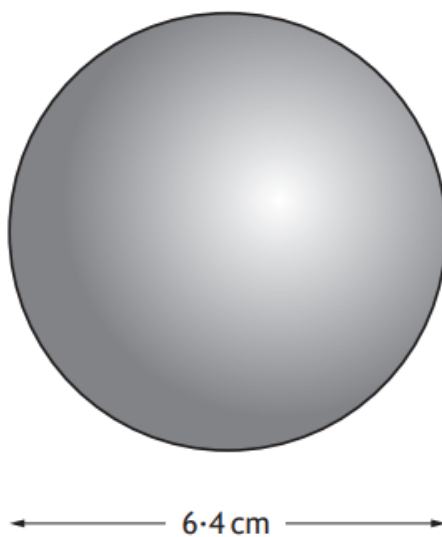
Calculate the height of the pyramid.

Answer: *Height = 11.5 cm*

Source: 2018 P2 Q7 N5 Maths

(3)

A toy company makes juggling balls in the shape of a sphere with a diameter of 6.4 centimetres.



Calculate the volume of one juggling ball.

Give your answer correct to 2 significant figures.

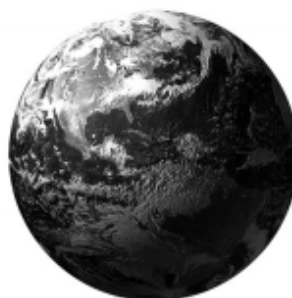
Answer: *Volume = 140 cm³ (2 significant figures)*

Source: 2018 P2 Q11 N5 Maths

- (4) Venus and Earth are two planets within our solar system.



Venus



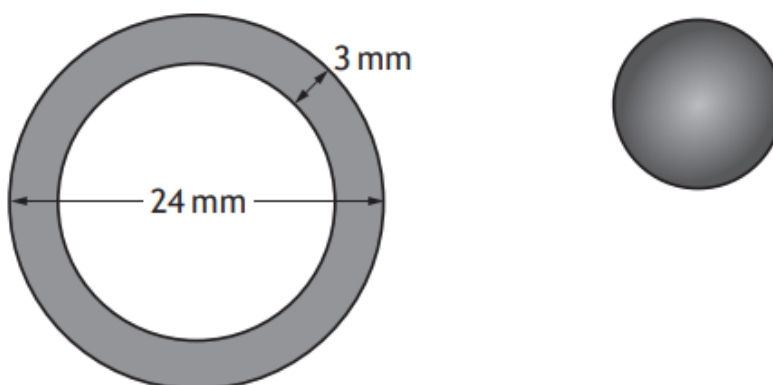
Earth

The volume of Venus is approximately 9.3×10^{11} cubic kilometres.
This is 85% of the volume of Earth.
Calculate the volume of Earth.

Answer: $Volume = 29\,900\text{ cm}^3$ (3 significant figures)

Source: 2017 P2 Q6 N5 Maths

- (5) A spherical sweet is made by coating a caramel sphere evenly with chocolate.
A cross-section of the sweet is shown below.



The diameter of the sweet is 24 millimetres and the thickness of the chocolate coating is 3 millimetres.

Calculate the volume of the chocolate coating.

Give your answer correct to 3 significant figures.

Answer: $Volume = 4180\text{ mm}^3$ (3 significant figures)

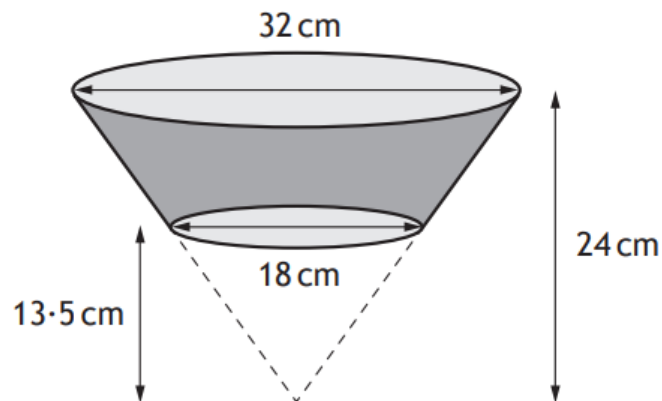
Source: 2016 P2 Q7 N5 Maths

(6)

A carton is in the shape of a large cone with a small cone removed.

The large cone has diameter of 32 cm and height 24 cm.

The small cone has diameter of 18 cm and height 13.5 cm.



Calculate the volume of the carton.

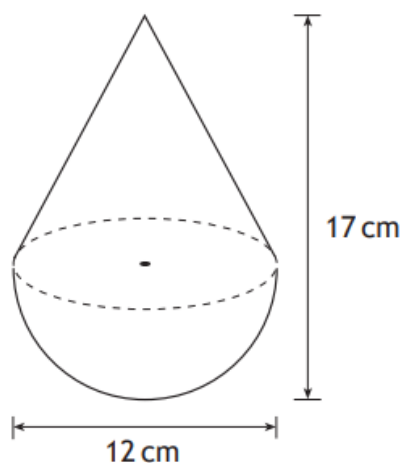
Give your answer correct to 2 significant figures.

Answer: $Volume = 5300 \text{ cm}^3$ (2 significant figures)

Source: Specimen P2 Q6 N5 Maths

(7)

A child's toy is in the shape of a hemisphere with a cone on top, as shown in the diagram.



The toy is 12 centimetres wide and 17 centimetres high.

Calculate the volume of the toy.

Give your answer correct to 2 significant figures.

Answer: $Volume = 870 \text{ cm}^3$ (2 significant figures)