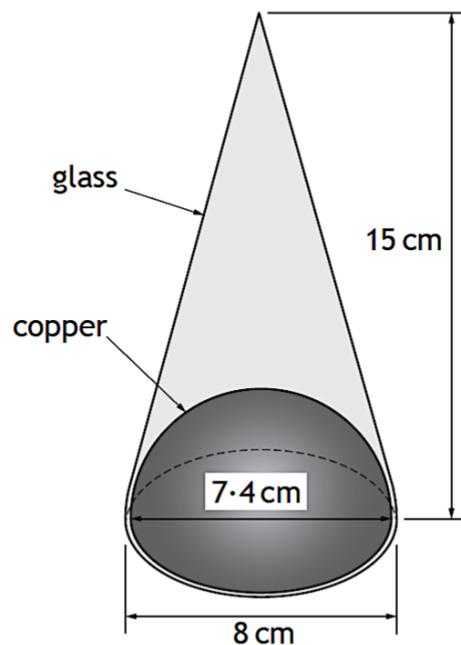## Volume - Questions

Marks are indicated in brackets after each question number

2014 Paper 2 Question 7, (5)

An ornament is in the shape of a cone with diameter 8 centimetres and height 15 centimetres.

The bottom contains a hemisphere made of copper with diameter 7·4 centimetres. The rest is made of glass, as shown in the diagram below.

Calculate the volume of the glass part of the ornament.

Give your answer correct to 2 significant figures.
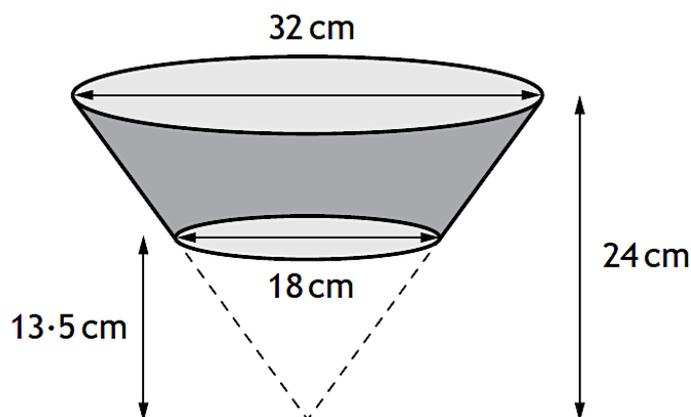
2015 Paper 2 Question 6, (3) (2)

(a) The Earth is approximately spherical with a radius of 6400 kilometres.

Calculate the volume of the Earth giving your answer in scientific notation, correct to 2 significant figures.

(b) The approximate volume of the Moon is $2 \cdot 2 \times 10^{10}$ cubic kilometres.

Calculate how many times the Earth's volume is greater than the Moon's.

2016 Paper 2 Question 7, (5)

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.

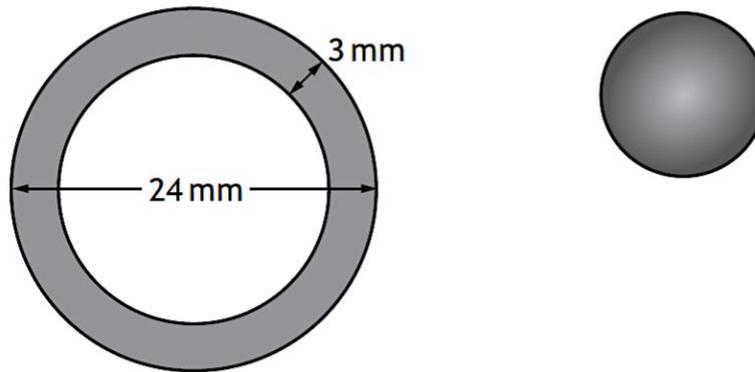The small cone has diameter of 18 cm and height 13·5 cm.

32 cm

24 cm

18 cm

13·5 cm

Calculate the volume of the carton.

Give your answer correct to 2 significant figures.

2017 Paper 2 Question 6, (5)

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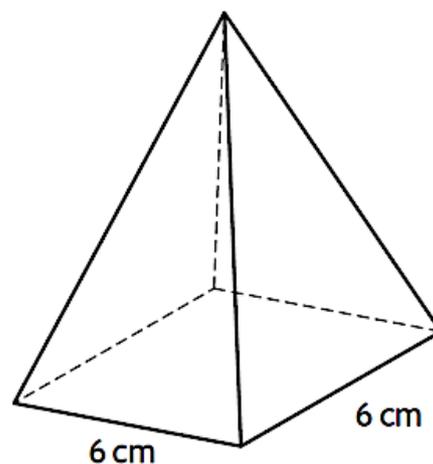
A cross-section of the sweet is shown below.

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.

2018 Paper 1 Question 17, (3)

A square based pyramid is shown in the diagram below.
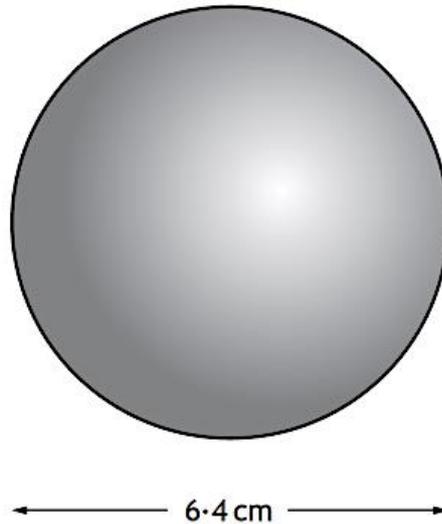

The square base has length 6 centimetres.

The volume is 138 cubic centimetres.

Calculate the height of the pyramid.

A toy company makes juggling balls in the shape of a sphere with a diameter of 6·4 centimetres.

←——— 6·4 cm ———→

Calculate the volume of one juggling ball.

Give your answer correct to 2 significant figures.

Venus and Earth are two planets within our solar system.

Venus   Earth

The volume of Venus is approximately $9·3 \times 10^{11}$ cubic kilometres.

This is 85% of the volume of Earth.
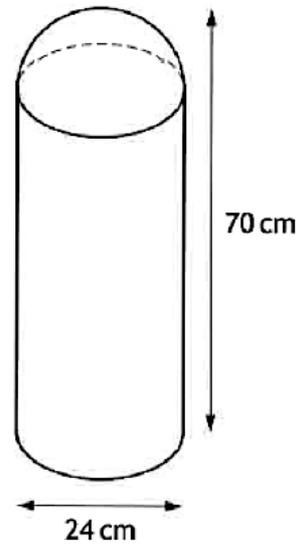
Calculate the volume of Earth.

2019 Paper 2 Question 8, (5)

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

The bollard has

- diameter 24 centimetres
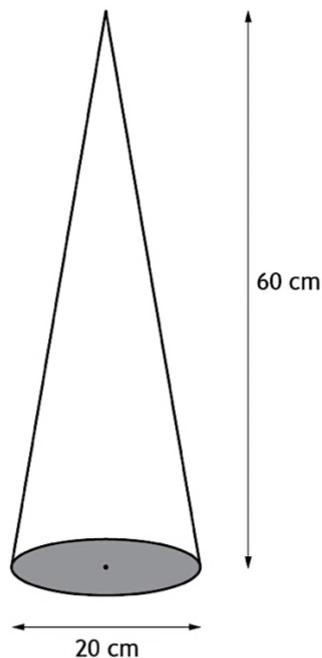- height 70 centimetres.

70 cm

24 cm

Calculate the volume of the bollard.

Give your answer correct to 3 significant figures.

2022 Paper 1 Question 3, (2)

The diagram below shows a cone with diameter 20 centimetres and height 60 centimetres.
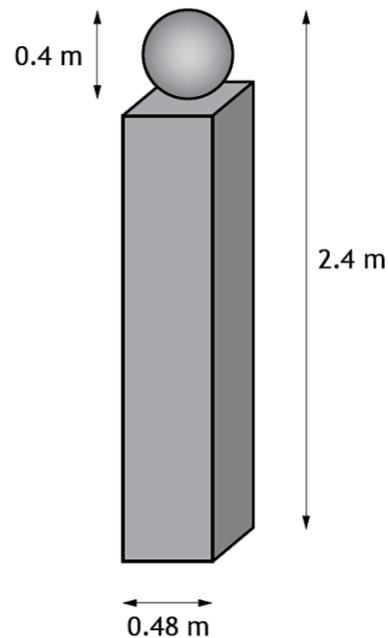
60 cm

20 cm

Calculate the volume of the cone.

Take $\pi = 3.14$.

2022 Paper 2 Question 3, (3)

A concrete gatepost is made in the shape of a cuboid with a sphere on top.

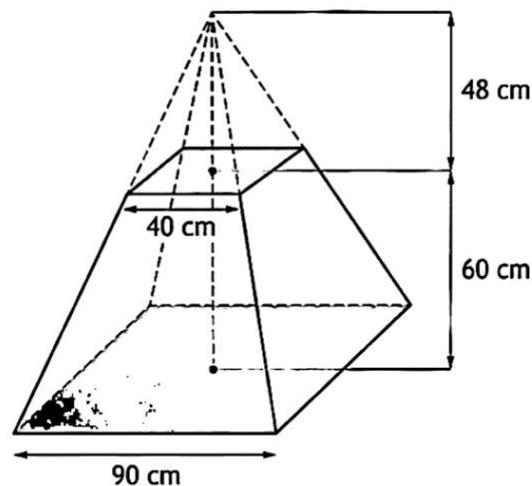The sphere has diameter 0.4 metres.

The cuboid has a square base of length 0.48 metres.

The total height of the gatepost is 2.4 metres.

0.4 m

2.4 m

0.48 m

Calculate the volume of concrete needed to make a gatepost.

2023 Paper 2 Question 9, (4)

A concrete block is in the shape of a large pyramid with a small pyramid removed.

48 cm

40 cm

60 cm

90 cm

The large pyramid has a square base of length 90 centimetres.

The small pyramid has a square base of length 40 centimetres and a height of 48 centimetres.

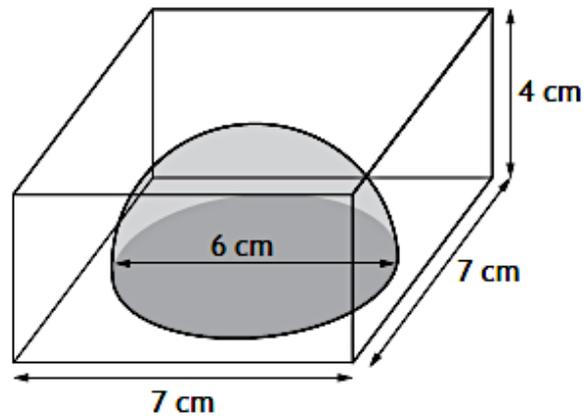The block has height 60 centimetres.

Calculate the volume of the block.

2024 Paper 2 Question 7, (4)

A paperweight is in the shape of a cuboid.

It consists of a hemisphere of red glass surrounded by clear glass.

The cuboid has height 4 centimetres and a square base of length 7 centimetres.

The hemisphere has diameter 6 centimetres.

Calculate the volume of clear glass in the paperweight.

Give your answer correct to 2 significant figures.

2025 Paper 2 Question 2, (3)

A shop sells footballs in the shape of a sphere with diameter 21 centimetres.

Calculate the volume of the football.

Give your answer correct to 3 significant figures.