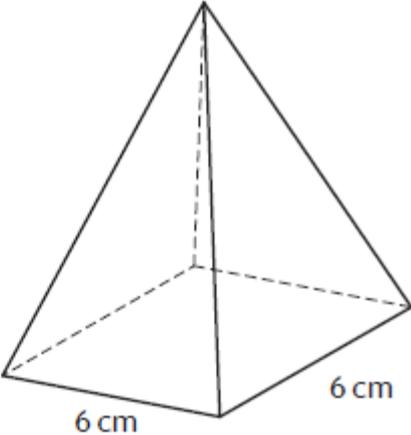
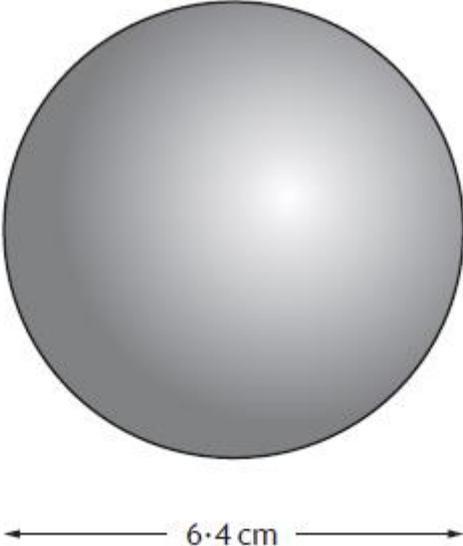
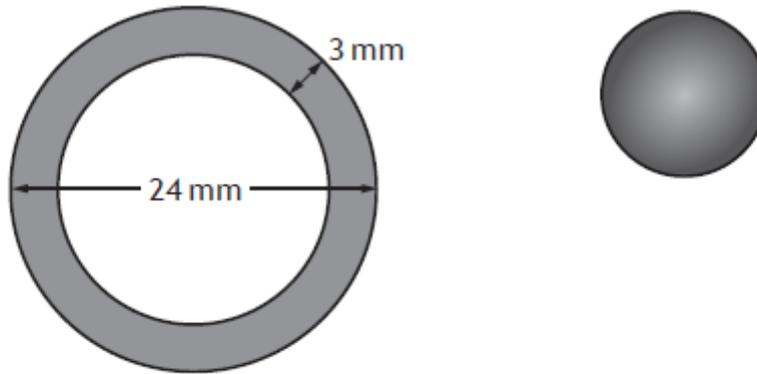


2018 P1 Q17	<p>A square based pyramid is shown in the diagram below.</p>  <p>The square base has length 6 centimetres. The volume is 138 cubic centimetres. Calculate the height of the pyramid.</p>	5
Ans	<i>11.5 cm</i>	
2018 P2 Q7	<p>A toy company makes juggling balls in the shape of a sphere with a diameter of 6.4 centimetres.</p>  <p>Calculate the volume of one juggling ball. Give your answer correct to 2 significant figures.</p>	3
Ans	<i>140 cm³</i>	

2017 P2 Q6

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.

5

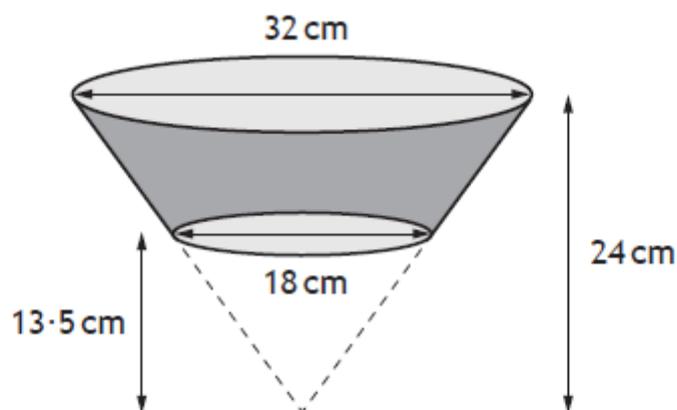
Ans 4180 mm^3

2016 P2 Q7

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.

5

Ans 5300 cm^3

2015 P2 Q10

A mug in the shape of a cylinder has a volume of 400 cubic centimetres.



Its diameter is 7.6 centimetres.

Calculate the height of the mug, giving your answer correct to one decimal place.

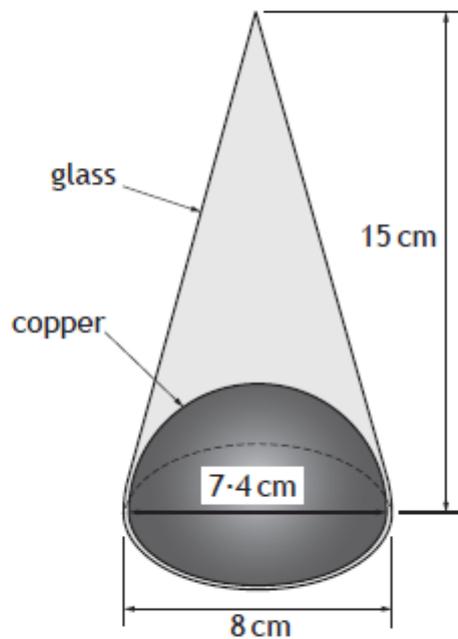
3

Ans 8.8cm

2014 P2 Q7

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.

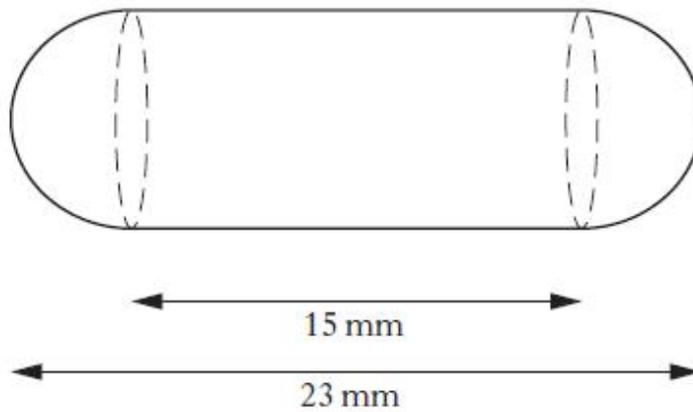
Give your answer correct to 2 significant figures.

5

Ans 150cm³

A health food shop produces cod liver oil capsules for its customers.

Each capsule is in the shape of a cylinder with hemispherical ends as shown in the diagram below.

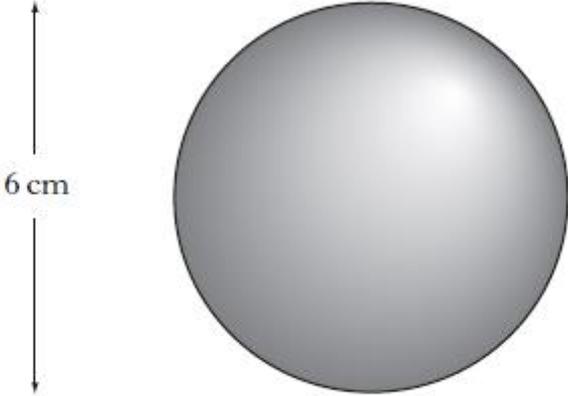
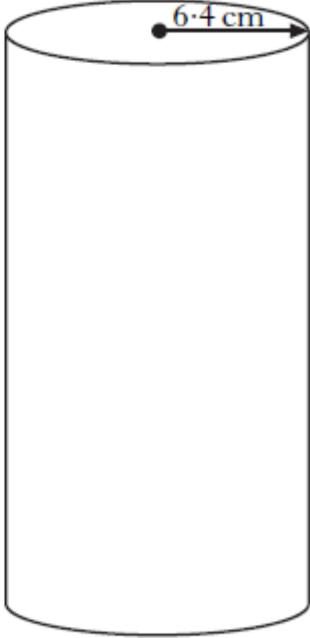


The total length of the capsule is 23 millimetres and the length of the cylinder is 15 millimetres.

Calculate the volume of one cod liver oil capsule.

2012 P2 Q3

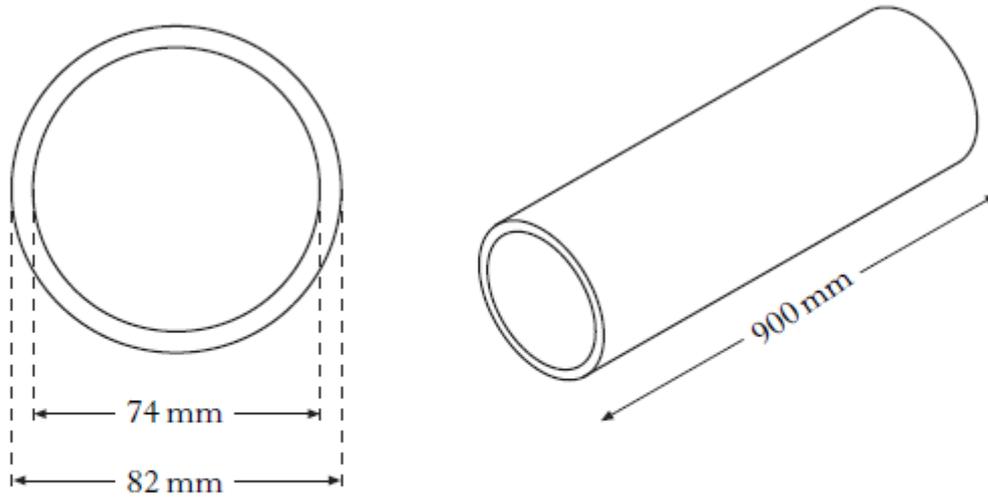
Ans 1022mm^3

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">2010 P1 Q3</p>	<p>The diagram below represents a sphere.</p> <div style="text-align: center;">  </div> <p>The sphere has a diameter of 6 centimetres. Calculate its volume. Take $\pi = 3.14$.</p>	2
<p>Ans</p>	<p>113.04cm^3</p>	
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">2010 P2 Q11</p>	<p>A cylindrical container has a volume of 3260 cubic centimetres. The radius of the cross section is 6.4 centimetres. Calculate the height of the cylinder.</p> <div style="text-align: center;">  </div>	3
<p>Ans</p>	<p>25.3cm</p>	

2009 P2 Q3

A company manufactures aluminium tubes.

The cross-section of one of the tubes is shown in the diagram below.



The inner diameter is 74 millimetres.

The outer diameter is 82 millimetres.

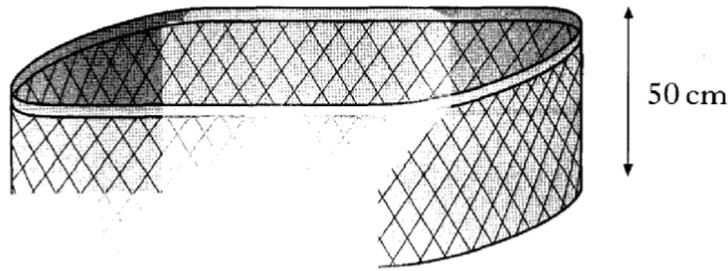
The tube is 900 millimetres long.

Calculate the volume of aluminium used to make the tube.

Give your answer correct to three significant figures.

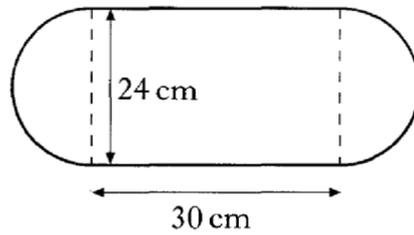
Ans 882 000 mm³

Jim Reid keeps his washing in a basket. The basket is in the shape of a prism.



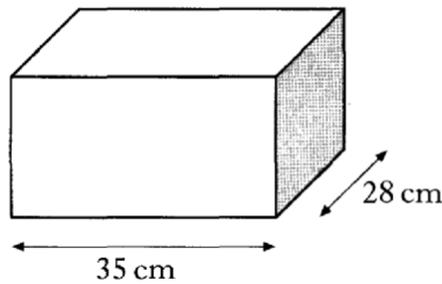
The height of the basket is 50 centimetres.

The cross section of the basket consists of a rectangle and two semi-circles with measurements as shown.



- (a) Find the volume of the basket in cubic centimetres.
Give your answer correct to three significant figures.

Jim keeps his ironing in a storage box which has a volume **half** that of the basket.



The storage box is in the shape of a cuboid, 35 centimetres long and 28 centimetres broad.

- (b) Find the height of the storage box.

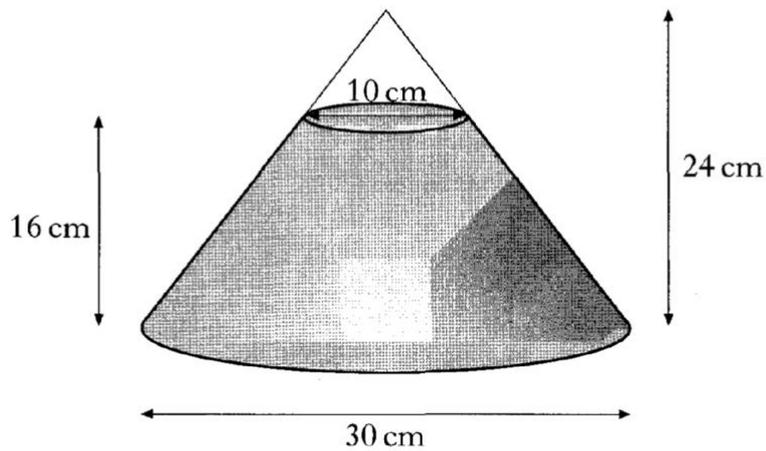
2008 P2 Q2

4

3

Ans (a) 58600cm^3 (b) 29.9cm

A glass ornament in the shape of a cone is partly filled with coloured water.



The cone is 24 centimetres high and has a base of diameter 30 centimetres.
The water is 16 centimetres deep and measures 10 centimetres across the top.

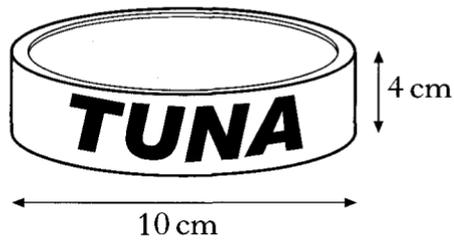
What is the volume of the water?

Give your answer correct to 2 significant figures.

5

Ans 5400cm^3

A tin of tuna is in the shape of a cylinder.



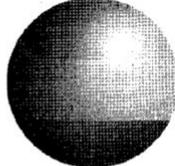
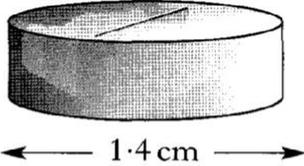
It has diameter 10 centimetres and height 4 centimetres.

Calculate its volume.

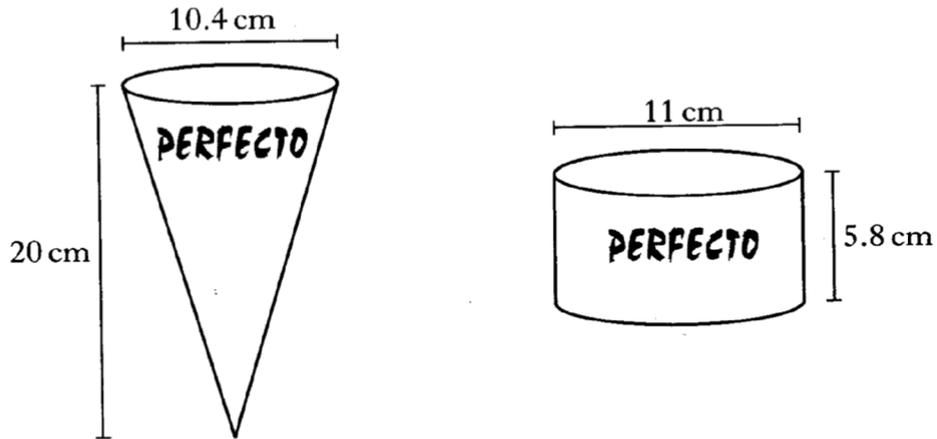
Take $\pi = 3.14$.

2

Ans 314cm^3

2006 P2 Q3	<p>A child's toy is in the shape of a hemisphere with a cone on top, as shown in the diagram.</p> <p>The toy is 10 centimetres wide and 16 centimetres high.</p> <p>Calculate the volume of the toy.</p> <p>Give your answer correct to 2 significant figures.</p>	5
Ans	550cm^3	
2005 P2 Q7	<p>A pharmaceutical company makes vitamin pills in the shape of spheres of radius 0.5 centimetres.</p> <p>(a) Calculate the volume of one pill.</p> <p>Give your answer correct to two significant figures.</p> <p>The company decides to change the shape of each pill to a cylinder.</p>   <p>(b) The new pill has the same volume as the original and its diameter is 1.4 centimetres.</p> <p>Calculate the height of the new pill.</p>	3
Ans	(a) 0.52cm^3 (b) 0.34cm	3

Perfecto Ice Cream is sold in cones and cylindrical tubs with measurements as shown below.



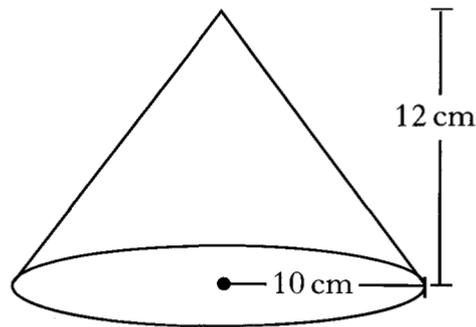
Both the cone and the tub of ice cream cost the same.
Which container of ice cream is better value for money?
Give a reason for your answer.

2004 P2 Q9

5

Ans Cone is better value since $566.3\text{cm}^3 > 551.2\text{cm}^3$

The diagram shows a cone.



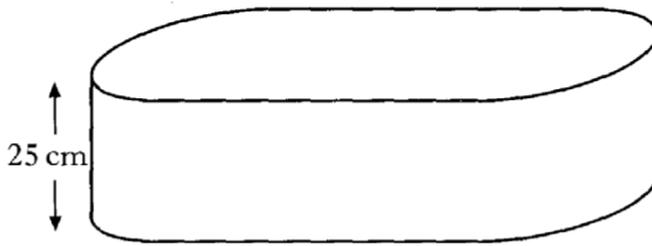
The height is 12 centimetres and the radius of the base 10 centimetres.
Calculate the volume of the cone.
Take $\pi = 3.14$.

2003 P1 Q3

2

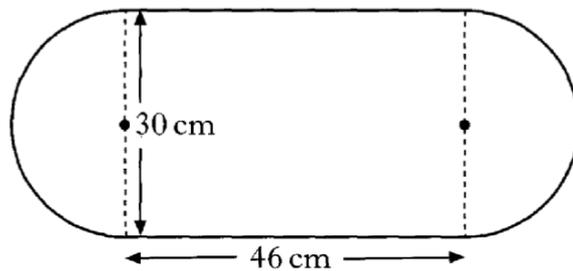
Ans 1256cm^3

A garden trough is in the shape of a prism.



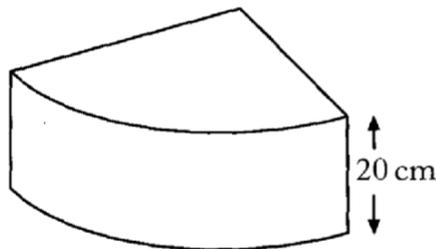
The height of the trough is 25 centimetres.

The cross-section of the trough consists of a rectangle and two semi-circles with measurements as shown.



- (a) Find the volume of the garden trough in cubic centimetres.
Give your answer correct to two significant figures.

A new design of garden trough is planned by the manufacturer.



The height of the trough is 20 cm.

The uniform cross-section of this trough is a quarter of a circle.

The volume of the trough is $30\,000\text{ cm}^3$.

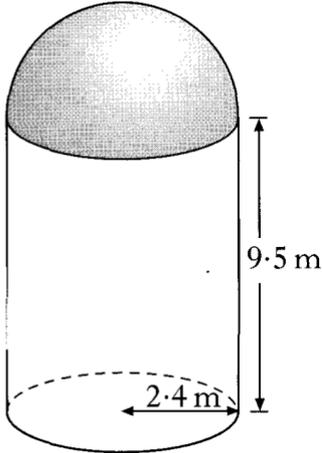
- (b) Find the radius of the cross-section.

2003 P2 Q6

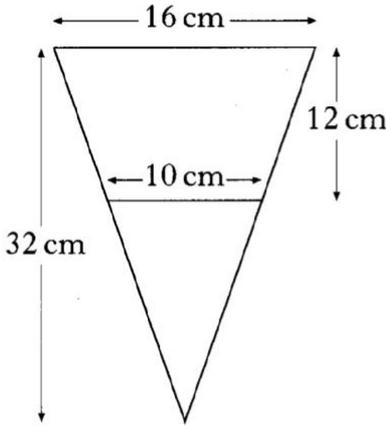
4

3

Ans (a) 52000 cm^3 (b) 43.7 cm

2002W P2 Q4	<p>A grain store is in the shape of a cylinder with a hemisphere on top as shown in the diagram.</p> <p>The cylinder has radius 2.4 metres and height 9.5 metres.</p> <p>Find the volume of the grain store.</p> <p>Give your answer in cubic metres, correct to 1 significant figure.</p>		4
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Ans	$200m^3$
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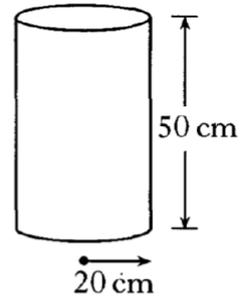
2002 P2 Q6	<p>A container to hold chocolates is in the shape of part of a cone with dimensions as shown below.</p> <div style="text-align: center;">   </div>		5
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Ans	$2000cm^3$
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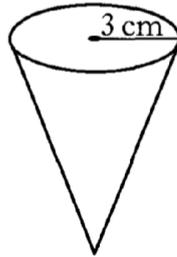
A drinks container is in the shape of a cylinder with radius 20 centimetres and height 50 centimetres.

- (a) Calculate the volume of the drinks container.

Give your answer in cubic centimetres, correct to two significant figures.



- (b) Liquid from the full container can fill 800 cups, in the shape of cones, each of radius 3 centimetres.



What will be the height of liquid in each cup?

Ans (a) 63000cm^3 (b) 8.3cm