

Name :

Teacher

Intermediate 2 Official Homework 2

Created by Mr Lafferty

St. Ninian's High School

This homework covers

Volume of Solids Past Paper Questions

Intermediate 2

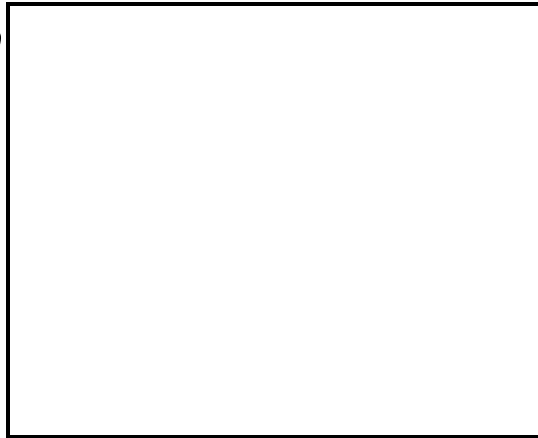
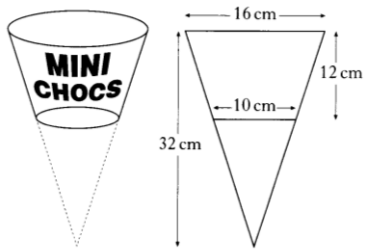
50

Teacher Comments :

Pupil's Comment :

Q1.

A container to hold chocolates is in the shape of part of a cone with dimensions as shown below.



Calculate the volume of the container.
Give your answer correct to one significant figure.

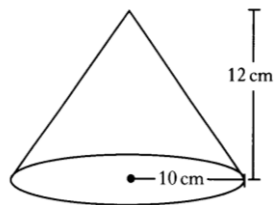
5 marks

Working :



Q2.

The diagram shows a cone.



The height is 12 centimetres and the radius of the base 10 centimetres.
Calculate the volume of the cone.

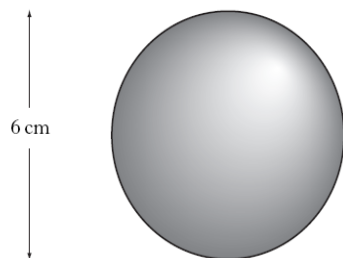
Take $\pi = 3.14$.



2 marks

Q3.

The diagram below represents a sphere.



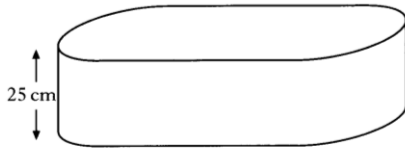
The sphere has a diameter of 6 centimetres.
Calculate its volume.

Take $\pi = 3.14$.



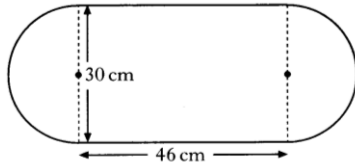
2 marks

Q4. A garden trough is in the shape of a prism.



The height of the trough is 25 centimetres.

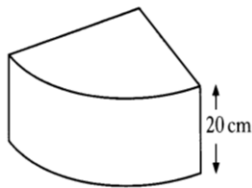
The cross-section of the trough consists of a rectangle and two semi-circles with measurements as shown.



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

Working :

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.

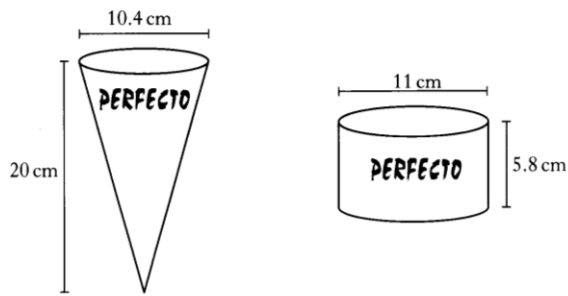
The volume of the trough is $30\,000\text{ cm}^3$.

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

Working :

5 marks

- Q5. 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.

Working :

5 marks

- Q6. 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.



Working :

3 marks

Q7.

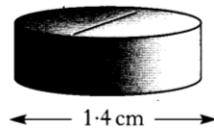
A pharmaceutical company makes vitamin pills in the shape of spheres of radius 0.5 centimetres.



(a) Calculate the volume of **one** pill.

Give your answer correct to two significant figures.

The company decides to change the shape of each pill to a cylinder.



(b) The new pill has the **same** volume as the original and its diameter is 1.4 centimetres.

Calculate the height of the new pill.

Working :

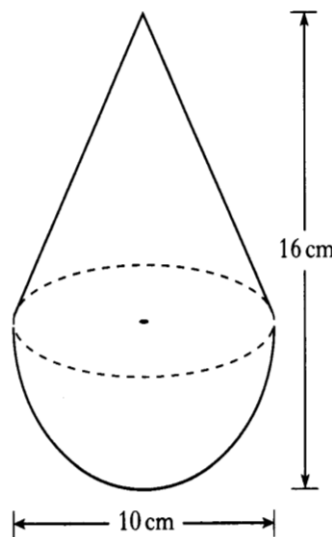
5 marks

Q8. A child's toy is in the shape of a hemisphere with a cone on top, as shown in the diagram.

The toy is 10 centimetres wide and 16 centimetres high.

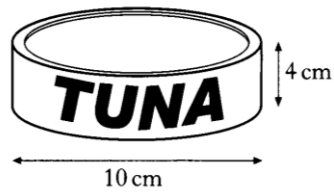
Calculate the volume of the toy.

Give your answer correct to 2 significant figures.



5 marks

Q9. A tin of tuna is in the shape of a cylinder.

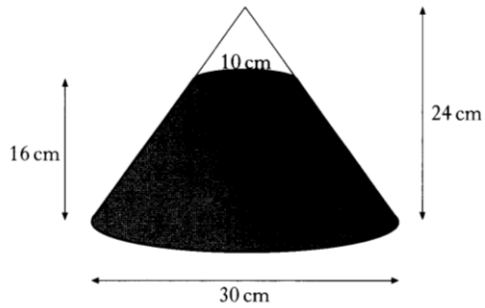


It has diameter 10 centimetres and height 4 centimetres.
Calculate its volume.

Take $\pi = 3.14$.

3 marks

Q10. 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.

Working :

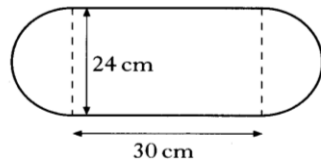
5 marks

Q10. 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.

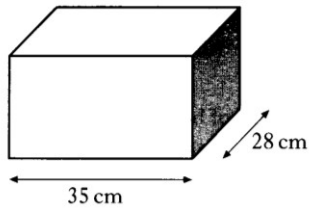
The cross section of the basket consists of a rectangle and two semi-circles with measurements as shown.



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

Working :

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



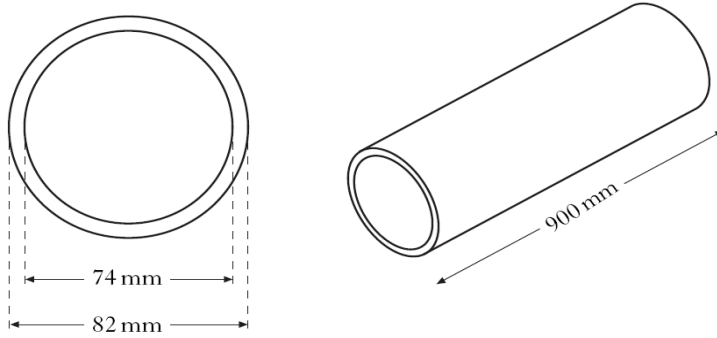
The storage box is in the shape of a cuboid, 35 centimetres long and 28 centimetres broad.

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

Working :

5 marks

Q11. 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.

Working :

5 marks