The diagram shows a prism.
The cross section of the prism is a trapezium.
The lengths of the parallel sides of the trapezium are 9 cm and 5 cm.
The distance between the parallel sides of the trapezium is 6 cm.
The length of the prism is 15 cm.

(a) Work out the area of the trapezium.

.................... cm$^2$
(2)

(b) Work out the volume of the prism.

.................... cm$^3$
(2) Q7

(Total 4 marks)
The diagram shows a prism. The cross-section of the prism is a right-angled triangle. The lengths of the sides of the triangle are 3 cm, 4 cm and 5 cm. The length of the prism is 7 cm.

(a) Work out the volume of the prism.

......... cm$^3$

(3)

(b) Work out the total surface area of the prism.

......... cm$^2$

(3) Q9

(Total 6 marks)
A solid cylinder has a diameter of 4.3 cm and a height of 7.6 cm.

Work out the volume of the cylinder.
Give your answer correct to 3 significant figures.
A solid hemisphere A has a radius of 2.8 cm.

(a) Calculate the total surface area of hemisphere A.
    Give your answer correct to 3 significant figures.

\[ \text{Total surface area} = \ldots \text{cm}^2 \]

(b) Calculate the total surface area of hemisphere B.
    Give your answer correct to 3 significant figures.

\[ \text{Total surface area} = \ldots \text{cm}^2 \]

(Total 6 marks)
Maxicool!!

The new ice cream sensation

A Maxicool consists of a cone full of ice cream with a hemisphere of ice cream on top.
The radius of the hemisphere is 3 cm.
The radius of the base of the cone is 3 cm.
The height of the cone is 10 cm.

Diagram NOT accurately drawn

Calculate the total volume of ice cream in a Maxicool.
Give your answer correct to 3 significant figures.

.................. cm$^3$  
(Total 4 marks)
The diagram shows a solid cone.
The radius of its base is 3.7 cm and the slant height is 8.3 cm.

(a) Calculate the total surface area of the cone.
    Give your answer correct to 3 significant figures.

(b) Calculate the volume of the cone.
    Give your answer correct to 3 significant figures.

\[ \text{Total 6 marks} \]
A cylindrical tank has a radius of 30 cm and a height of 45 cm. The tank contains water to a depth of 36 cm.

A metal sphere is dropped into the water and is completely covered. The water level rises by 5 cm.

Calculate the radius of the sphere.
The diagram shows a solid made from a cone and a cylinder. The cylinder has radius $r$ and height $r$. The cone has base radius $r$ and height $r$.

(a) Show that the total volume of the solid is equal to the volume of a sphere of radius $r$.

(2)

The curved surface area of a cylinder with base radius $r$ and height $h$ is $2\pi rh$. The curved surface area of a cone with base radius $r$ and slant height $l$ is $\pi rl$.

(b) Show that the total surface area of the above solid is greater than the surface area of a sphere of radius $r$.

(3)

(Total 5 marks)