

The diagram shows an empty tank in the shape of a cylinder.

The cylinder has radius **15 cm** and height **43 cm**.

Water flows into the tank at a rate of **0.47 litres per minute**.

Calculate the number of minutes it will take to completely fill the tank.

Give your answer correct to the nearest minute.

4 marks

The diagram shows a solid cube placed on a horizontal table.

The pressure on the table due to the cube is **3.5 newtons/cm²**.

The force exerted by the cube on the table is **504 newtons**.

Show that the total surface area of the cube is **less than 900 cm²**.

3 marks

Here is a shape made from a rectangle and a triangle.

The shape has exactly **one line of symmetry**.

The area of the rectangle is **3.5 times** the area of the triangle.

The width of the rectangle is w cm.

Work out the value of w .

You must show all your working.

5 marks

A , B , C and D are points on a circle such that $ABCD$ is a square.

The square $ABCD$ has sides of length **3.5 cm**.

Calculate the circumference of the circle.

Give your answer correct to 1 decimal place.

You must show all your working.

4 marks

The diagram shows a sector $OPQR$ of a circle, centre O and radius 8 cm.

OPR is a triangle.

Work out the area of the shaded segment PQR .

Give your answer correct to 3 significant figures.

4 marks

The diagram shows a hexagon.

The hexagon has one line of symmetry.

$FA = BC$
 $EF = CD$

Angle $ABC = 117^\circ$

Angle $BCD = 2 \times$ angle CDE

Work out the size of angle AFE .

You must show all your working.

4 marks

A container is in the shape of a cuboid.

The container is $\frac{2}{3}$ full of water.

A cup holds **275 ml** of water.

What is the greatest number of cups that can be completely filled with water from the container?

4 marks

Jeremy has to cover **3 tanks** completely with paint.

Each tank is in the shape of a cylinder with a top and a bottom.

The tank has a diameter of **1.6 m** and a height of **1.8 m**.

Jeremy has **7 tins** of paint.

Each tin of paint covers **5 m²**.

Has Jeremy got enough paint to cover completely the 3 tanks?

You must show how you get your answer.

5 marks

BEG is a triangle.

ABC and DEF are parallel lines.

Work out the size of angle x .

Give a reason for each stage of your working.

4 marks



ANSWERS