COMPOUND MEASURES

Question 1

A solid cone is joined to a solid hemisphere to make the solid shown below.

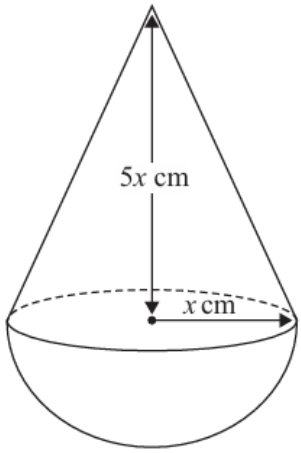

Diagram **NOT** accurately drawn

The cone is made from copper.
The density of copper is $9\,g/cm^3$

The hemisphere is made from a different metal.

The total mass of the solid is 4752π grams
The total volume of the solid is $504\pi\,cm^3$

Work out the density of the hemisphere.
Show your working clearly.

.....(6)

Question 2

A cylinder is placed on a table.

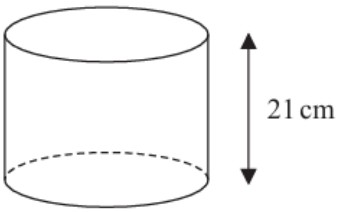

Diagram **NOT** accurately drawn

The volume of the cylinder is $1575\,cm^3$
The force exerted by the cylinder on the table is 84 newtons.

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

Work out the pressure on the table due to the cylinder.

.....(3)

Question 3

A plane takes 9 hours 36 minutes to fly from New Delhi to Perth.

The plane flies at an average speed of 820 km/h.

Work out the total distance the plane flies.

..... km

(3)

Question 4

Change a speed of w metres per second to a speed in kilometres per hour.
Give your answer in terms of w in its simplest form.

.....(3)

Question 5

Change a speed of 27 kilometres per hour to a speed in metres per second.

.....(3)

Question 6

Change a speed of 90 kilometres per hour to a speed in metres per second.
Show your working clearly.

..... m/s **(3)**

Question 7

A cylinder is placed on the ground.

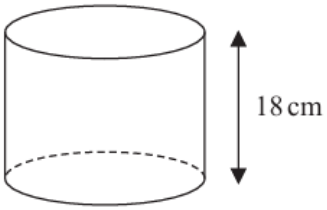

Diagram **NOT** accurately drawn

The height of the cylinder is 18 cm.

The force exerted by the cylinder on the ground is 72 newtons.
The pressure on the ground due to the cylinder is 1.4 newtons / cm^2

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

Work out the volume of the cylinder.
Give your answer correct to 3 significant figures.

.....(4)

Question 8

An aeroplane travelled from New York City to Los Angeles.

The aeroplane travelled a distance of 3980 kilometres in 5 hours 24 minutes.

Work out the average speed of the aeroplane.
Give your answer in kilometres per hour correct to the nearest whole number.

..... kilometres per hour **(3)**

Question 9

Change a speed of 81 kilometres per hour to a speed in metres per second.

..... metres per second **(3)**

Question 10

A solid aluminium cylinder has radius 10 cm and height h cm.

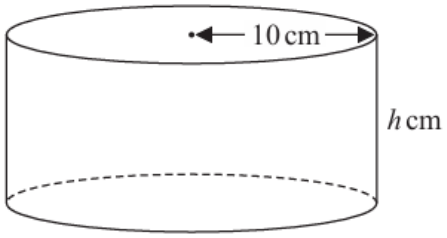

Diagram **NOT** accurately drawn

The mass of the cylinder is 5.4 kg.
The density of aluminium is 0.0027 kg/cm^3

Calculate the value of h.
Give your answer correct to one decimal place.

.....(5)

Question 11

The density of gold is 19.3 g/cm^3
A gold bar has volume 150 cm^3

Work out the mass of the gold bar.

.....(2)

Question 12

Change a speed of 50 metres per second to a speed in kilometres per hour.

.....(3)

Q1

The diagram shows a solid cube.
The cube is placed on a table so that the whole of one face of the cube is in contact with the table.

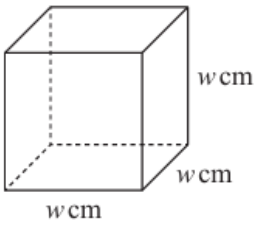

Diagram **NOT** accurately drawn

The cube exerts a force of 56 newtons on the table.
The pressure on the table due to the cube is 0.14 newtons/cm^2

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

Work out the volume of the cube.

(4)

Q2