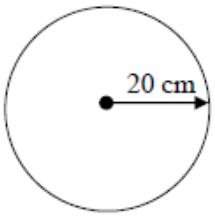
Maths
Junior Certificate
Ordinary Level

Past Exam Questions on
Volume, Cylinder and Spheres

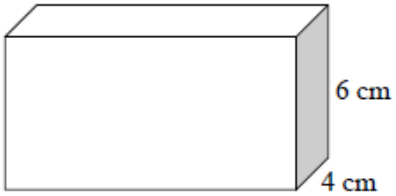
Q2 2011 Paper 2

2. **(a)** A circular disc has a radius of 20 cm.

Taking π as 3·142 find, in cm^2, the area of the disc.



(b) A solid rectangular block of wood has length 8 cm, width 4 cm and height 6 cm.

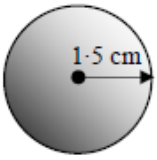


(i) Find, in cm^3, the volume of the block of wood.

(ii) Find, in cm^3, the volume of a cube of side 2 cm.

(iii) How many solid cubes, each of side 2 cm, can be made from the block of wood in **(i)**?

(c) A solid metal sphere has radius length 1·5 cm.



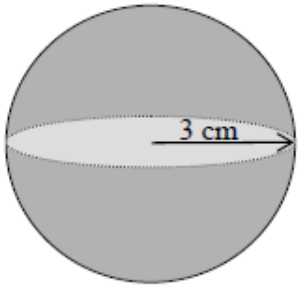
(i) Taking π as 3·142 find, in cm^3, the volume of the sphere.
Give your answer correct to two decimal places.

(ii) 100 of these spheres were melted down and recast as a cylinder.
The cylinder had a diameter of 10 cm.

Find, to the nearest cm, the height of the cylinder.

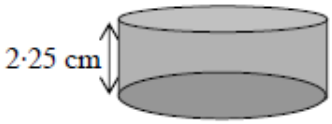
Q2 2009 Paper 2

2(c) A solid metal sphere has a radius 3 cm.



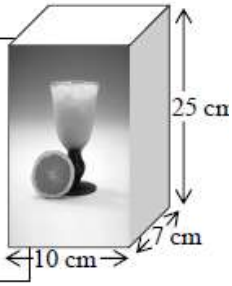
(i) Taking π as 3·142 find, in cm^3, the volume of the solid metal sphere.

(ii) The solid metal sphere was melted down and a quarter of the metal was recast to form a cylinder of height 2·25 cm. Taking π as 3·142 calculate, in cm, the radius of this cylinder.



Q2 2008 paper 2

2(c) (i) A rectangular carton full of orange juice measures 10 cm by 7 cm by 25 cm.
Find, in cm^3, the volume of orange juice in the carton.

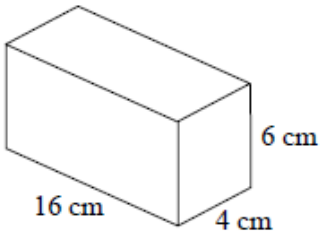


(ii) The orange juice fills 14 cylindrical glasses exactly.
Find, in cm^3, the volume of each glass.

(iii) The radius of each glass is 2·4 cm. Taking π as 3·14,
calculate the height of each glass, correct to the nearest cm.

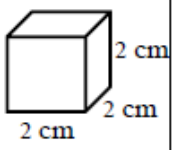
Q2 Part (b) 2007 paper 2

2(b) A solid rectangular block of wood has length 16 cm, width 4 cm and height 6 cm.



(i) Find, in cm^3, the volume of the block of wood.

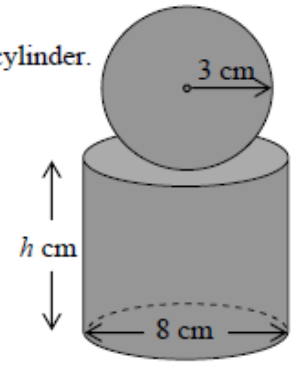
(ii) Cubes with sides of length 2 cm, as shown, are made from the block of wood. Find the number of cubes that can be made from the block of wood.



(iii) Calculate, in cm^2, the surface area of the block of wood.

Q2 Part (c) 2007 Paper 2

2(c) A solid trophy, as shown, has a sphere mounted on top of a cylinder. The radius of the sphere is 3 cm.



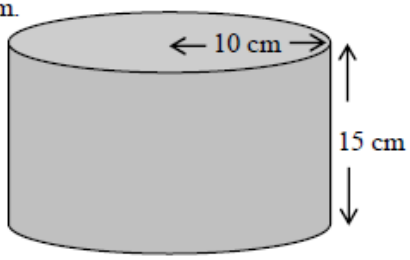
(i) Find the volume of the sphere in terms of π.

(ii) The cylinder in the trophy has a diameter of 8 cm and its volume is four times the volume of the sphere.
Find h, the height of cylinder in the trophy.

(iii) Find the total height of the trophy.

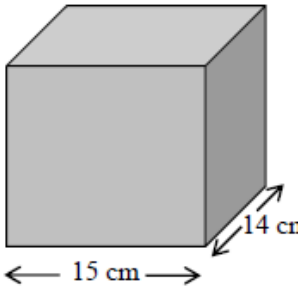
Q2 Part (c) 2006 Paper 2

2(c) A solid metal cylinder has radius 10 cm and height 15 cm.

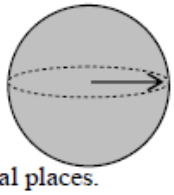


(i) Taking π as $3 \cdot 14$, find, in cm^3, the volume of the solid metal cylinder.

(ii) The cylinder was melted down and half of the metal was recast as a rectangular solid.
This rectangular solid has length 15 cm and width 14 cm.
Calculate, in cm, its height, correct to one decimal place.

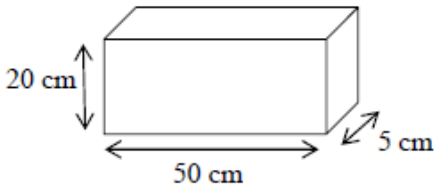


(iii) The other half of the metal was recast as a sphere.
This sphere had a surface area of $272 \cdot 57\pi$ cm^2.
Find, in cm, the radius of the sphere, correct to two decimal places.



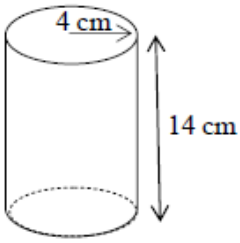
Q2 Part (a) 2005 Paper 2

2. **(a)** A rectangular box has measurements as shown.



Find the volume of the box in cm^3.

Q2 Part (c) 2005 paper 2

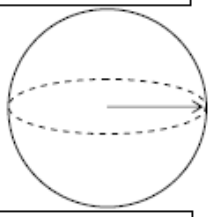


2(c) A solid cylinder has radius 4 cm and height 14 cm.

(i) Find the volume of the cylinder in terms of π.

(ii) Find the curved surface area of the cylinder in terms of π.

(iii) Find the total surface area of the cylinder in terms of π.



(iv) A sphere has the same surface area as the total surface area of the above cylinder. Find, in cm, the radius of this sphere.