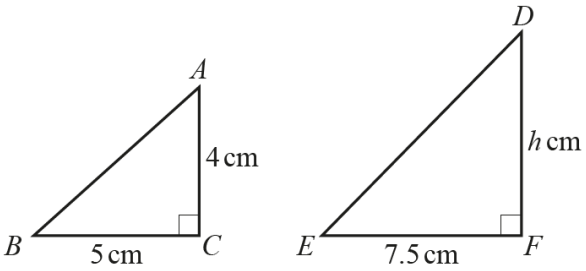
Geometrical Measurement – 2023 IGCSE Math 0444

1. June/2023/Paper_0444/21/No.6

Work out the volume of a sphere with diameter 6 cm.
Give your answer in terms of π.

..... cm^3 [2]

2. June/2023/Paper_0444/21/No.9



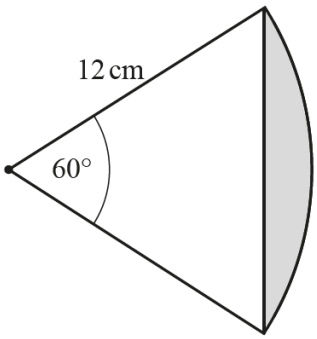
NOT TO SCALE

Triangle ABC is similar to triangle DEF.

Work out the value of h.

$h =$ ..... [2]

3. June/2023/Paper_0444/21/No.21

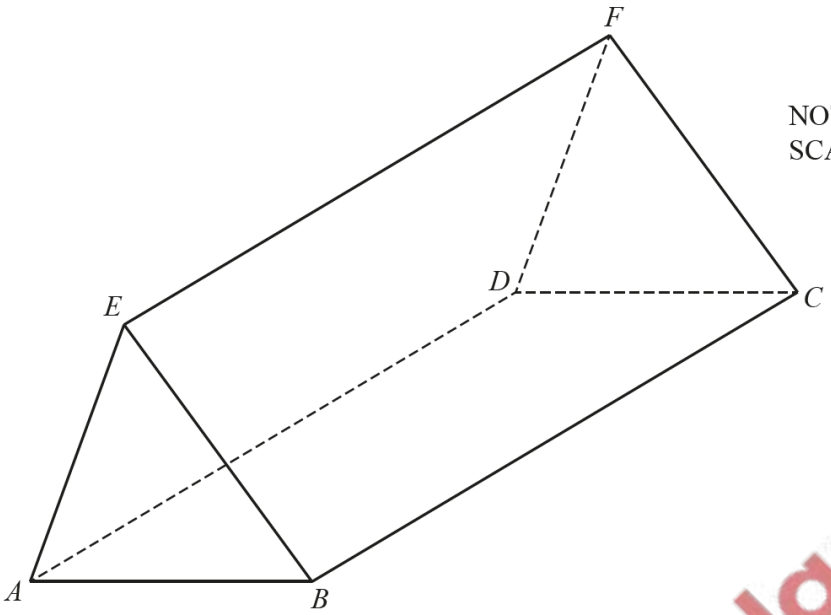


NOT TO SCALE

The diagram shows a sector of a circle with radius 12 cm.
Find the area of the shaded segment.
Give your answer in the form $p\pi - q\sqrt{3}$, where p and q are integers.

..... [3]

4. June/2023/Paper_0444/41/No.3



The diagram shows a solid triangular prism $ABCDEF$ of length 15 cm.
$AB = 6.4$ cm, $EB = 5.7$ cm and the volume of the prism is 145 cm^3.

(a) The prism is made of plastic with density 938 kg/m^3.

Calculate the mass of the prism in **grams**.
[Density = mass ÷ volume]

..... g [3]

(b) M is the point on AB that is vertically below E.

Calculate EM.

$EM =$ ..... cm [3]

(c) Calculate angle EBA.

Angle $EBA =$ ..... [2]

(d) Calculate EA.

$EA =$ ..... cm [3]

(e) Calculate the total surface area of the prism.

..... cm^2 [3]

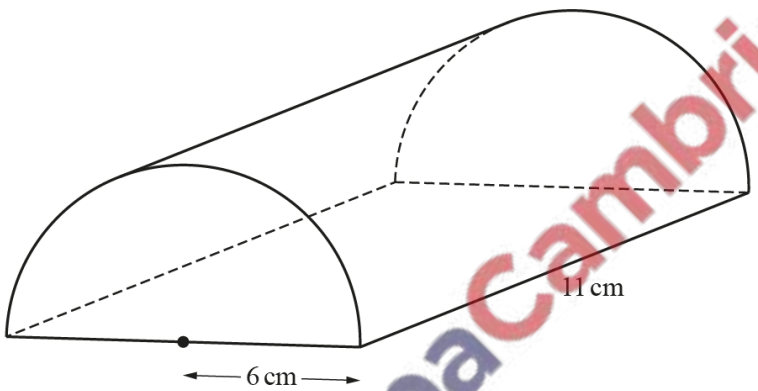
5. June/2023/Paper_0444/41/No.5

(a) A cone has a base radius of 5 cm and a perpendicular height of 12 cm.

Calculate the lateral surface area of this cone.

..... cm^2 [3]

(b)



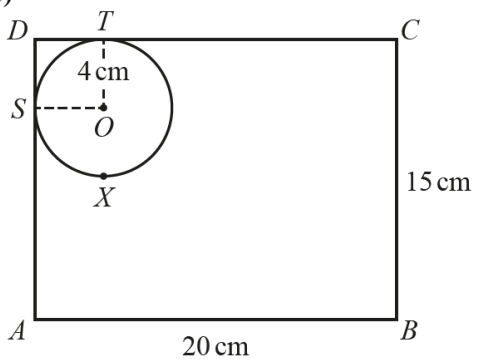
NOT TO SCALE

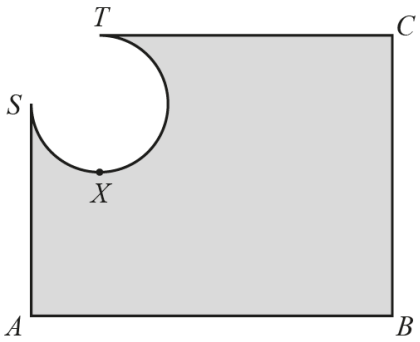
The diagram shows a half-cylinder of radius 6 cm and length 11 cm.

Calculate the volume of the half-cylinder.

..... cm^3 [2]

(c)





NOT TO SCALE

(i) $ABCD$ is a rectangle with $AB = 20$ cm and $BC = 15$ cm.
S, X and T are points on a circle center O, such that DSA and DTC are tangents to the circle.
The radius of the circle is 4 cm and TX is a diameter of the circle.
The shape $DSXT$ is removed from the corner of the rectangle, leaving the shaded shape shown in the second diagram.

Calculate the area of the shaded shape.

..... cm^2 [5]

(ii) Calculate the perimeter of the shaded shape.

..... cm [3]