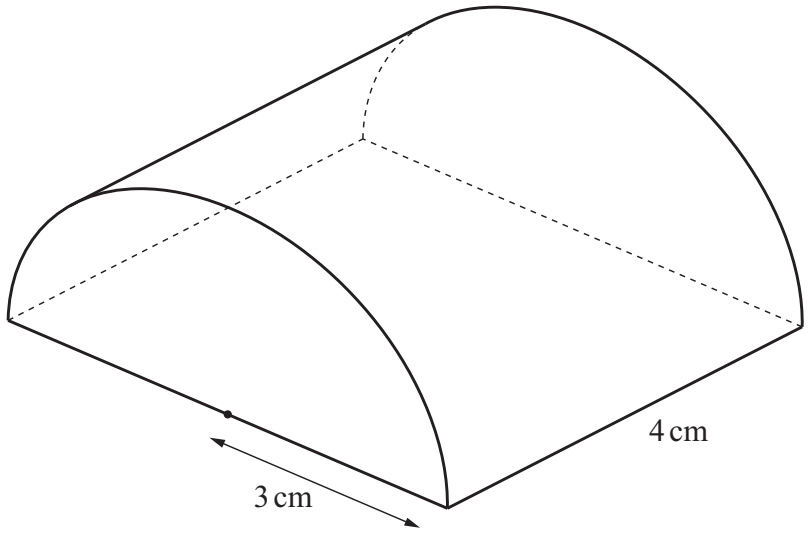
0607 International Mathematics Paper 2 - Mensuration

Topical questions | 12 questions

1. Question | 0607 Feb-March 2025 P2 V2 Q16

16



NOT TO SCALE

The diagram shows a solid half cylinder.
The radius of the cross-section is 3 cm.
The length of the solid is 4 cm.

Find the total surface area of the solid.
Give your answer in terms of π.

..... cm^2 [4]

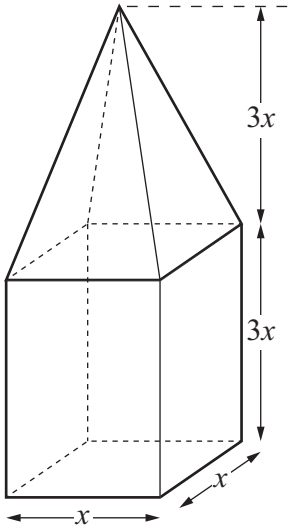
2. Question | 0607 May-June 2025 P2 V2 Q4

4 Convert 250 cm^3 into m^3.

..... m^3 [1]

3. Question | 0607 May-June 2025 P2 V2 Q12

12 In this question all lengths are in centimetres.



NOT TO SCALE

A solid is made by joining a cuboid to a pyramid.
The base of the cuboid is a square of side x.
The height of the cuboid is $3x$.

The base of the pyramid is a square of side x.
The height of the pyramid is $3x$.

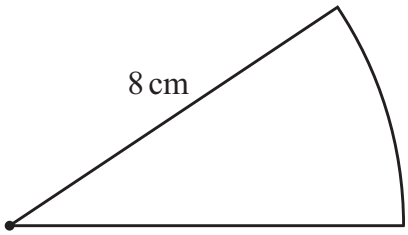
The total volume of the solid is $32\,000\ \text{cm}^3$.

Show that $x = 20$.

[3]

4. Question | 0607 May-June 2025 P2 V3 Q12

12



NOT TO SCALE

The diagram shows a sector of a circle with radius 8 cm.

The area of the sector is 8π cm^2.
The perimeter of the sector is $(a + b\pi)$ cm.

Find the value of a and the value of b.

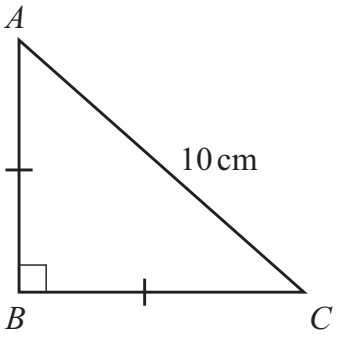
$a =$ .....

$b =$ .....

[4]

5. Question | 0607 Oct-Nov 2025 P2 V1 Q9

9



NOT TO SCALE

In the diagram, angle $ABC = 90^\circ$.
$AB = BC$ and $AC = 10$ cm.

Calculate the area of triangle ABC.

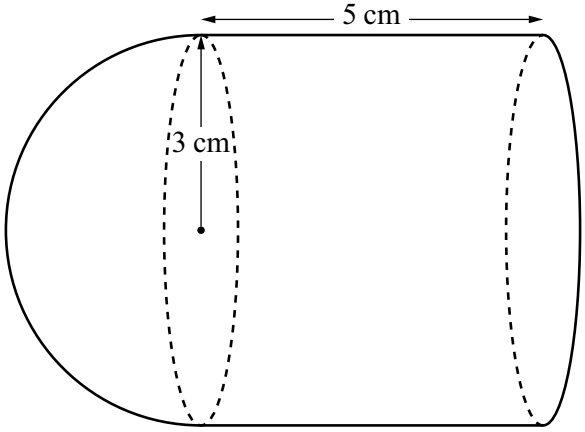
..... cm^2 [3]

6. Question | 0607 Oct-Nov 2025 P2 V2 Q3

3 Convert 390 mm into m.

..... m [1]

13



NOT TO SCALE

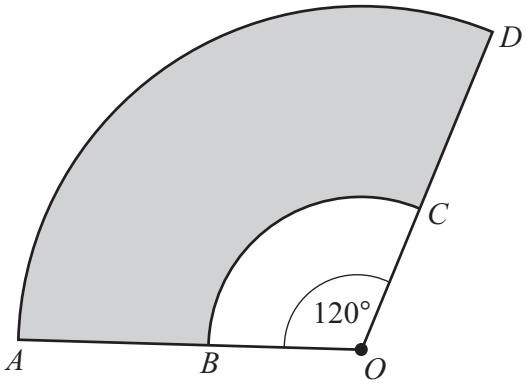
A solid is made by joining a hemisphere to a cylinder, as shown in the diagram.
The hemisphere has radius 3 cm.
The cylinder has radius 3 cm and length 5 cm.
The total volume of the solid is $k\pi$ cm^3.

Find the value of k.

$k =$ ..... [3]

8. Question | 0607 Feb-March 2026 P2 V2 Q19

19



NOT TO SCALE

OAD is a sector of a circle with centre O and sector angle 120°.
OBC is a sector of a circle with centre O and sector angle 120°.
ABO and DCO are straight lines.

$OA = 9\,\text{cm}$ and $OB = 3\,\text{cm}$.
The perimeter of the shaded region $ABCD$ is $(a + b\pi)\,\text{cm}$.

Find the value of a and the value of b.

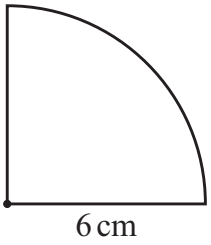
$a =$ .....

$b =$ .....

[4]

9. Question | 0607 May-June 2026 P2 V1 Q11

11 The diagram shows a shape that is a quarter of a circle.



NOT TO SCALE

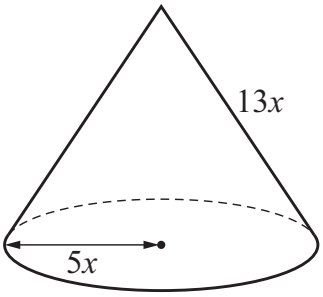
The radius of the circle is 6 cm.

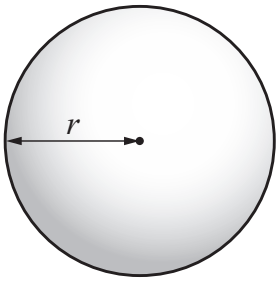
Find the perimeter of the shape.
Give your answer in terms of π.

..... cm [2]

10. Question | 0607 May-June 2026 P2 V1 Q23

23 In this question, all lengths are in centimetres.
The diagram shows a cone and a sphere.





NOT TO SCALE

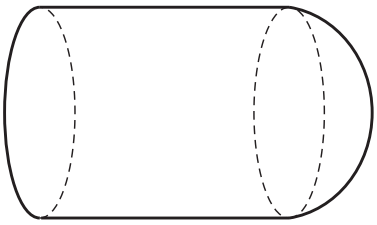
The radius of the cone is $5x$.
The sloping edge of the cone is $13x$.
The radius of the sphere is r.
The volume of the cone is equal to the volume of the sphere.

Show that $r^3 = 75x^3$.

[5]

11. Question | 0607 May-June 2026 P2 V2 Q9

9 The diagram shows a solid formed from a cylinder and a hemisphere.



NOT TO SCALE

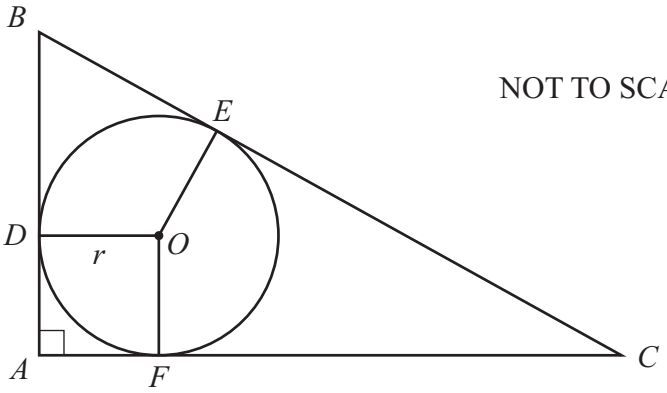
The length of the cylinder is 10 cm and its radius is 3 cm.
The radius of the hemisphere is 3 cm.
The total surface area of the solid is $k\pi$.

Find the value of k.

$k =$ ..... [4]

12. Question | 0607 May-June 2026 P2 V3 Q16

16 The diagram shows a circle drawn inside a right-angled triangle.



ABC is a right-angled triangle with $AB = 6\,\text{cm}$, $AC = 8\,\text{cm}$ and $BC = 10\,\text{cm}$.
The circle has centre O and radius $r\,\text{cm}$.
The circle touches the triangle at the points D, E and F.

(a) Give a geometrical reason to explain why $BD = BE$.

.....

..... [1]

(b) Find the area of the circle.
Give your answer in terms of π.

..... [4]

(c) Triangle PQR is similar to triangle ABC.
$PQ = 3\,\text{cm}$, $PR = 4\,\text{cm}$ and $RQ = 5\,\text{cm}$.

Find the area of the circle that touches the sides of triangle PQR.
Give your answer in terms of π.

..... [2]