eClassroom

GCSE Mathematics

Area & Perimeter

Questions

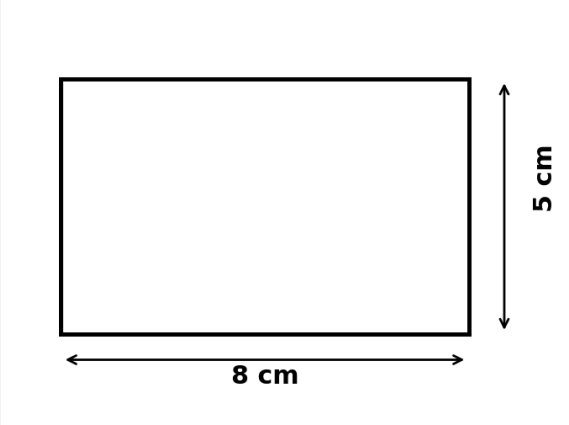
Pearson Edexcel GCSE & iGCSE Mathematics

Section A — Foundation

Worked Examples

[Fluency]

Find the area and perimeter of the rectangle.



Area = 8 × 5 = **40 cm²** Perimeter = 2(8+5) = **26 cm**

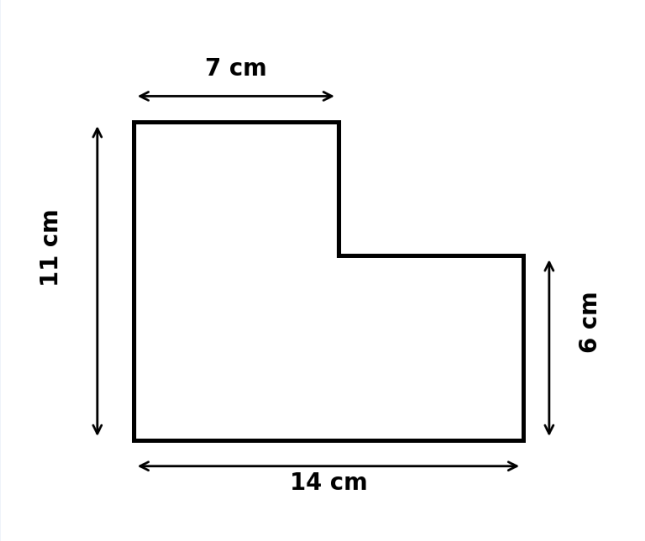
[Reasoning]

Find the area of the trapezium with parallel sides 6 cm and 10 cm, height 4 cm.

$$\text{Area} = \tfrac{1}{2}(a+b)h = \tfrac{1}{2}(6+10) \times 4 = \mathbf{32\ cm^2}$$

[Problem Solving]

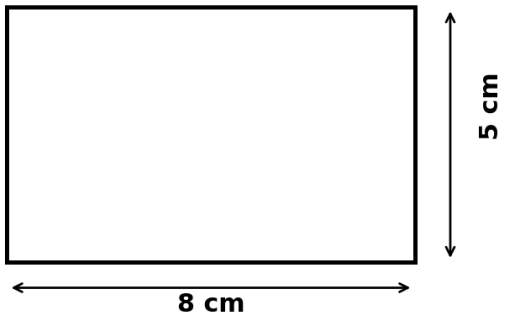
Find the area of the compound L-shape below.



Split into two rectangles: 14×6 + 7×5 = 84+35 = **119 cm²**

[Fluency]

1.



Find the area and perimeter of the rectangle.

(2 marks)

[Fluency]

2.

A triangle has base 10 cm and perpendicular height 7 cm.

Find its area.

(2 marks)

[Fluency]

3.

A trapezium has parallel sides 6 cm and 10 cm and a perpendicular height of 4 cm.

Find the area of the trapezium.

(2 marks)

[Fluency]

4.

A parallelogram has base 12 cm and perpendicular height 5 cm.

Find the area.

(1 mark)

[Fluency]

5.

A circle has radius 6 cm.

(a) Find the area. (2)

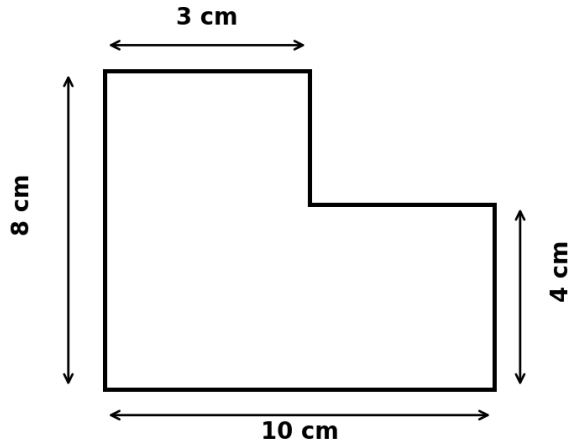
(b) Find the circumference. (2)

Give both answers in terms of π and correct to 1 decimal place.

(4 marks)

[Reasoning]

6.

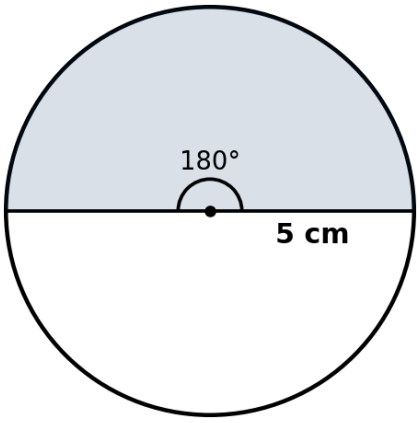


Find the area of the compound shape.

(3 marks)

[Reasoning]

7.

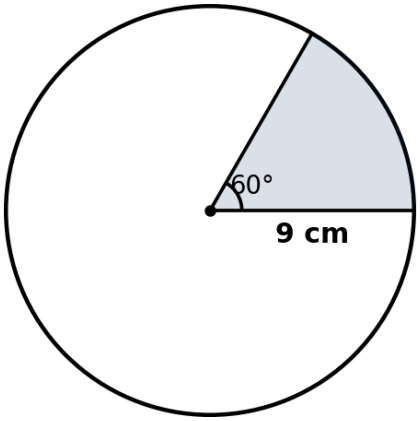


Find the area and perimeter of the semicircle.
Give your answers in terms of π.

(3 marks)

[Reasoning]

8.



Find the area and arc length of the sector.
Give your answers to 1 decimal place.

(4 marks)

[Problem Solving]

9.

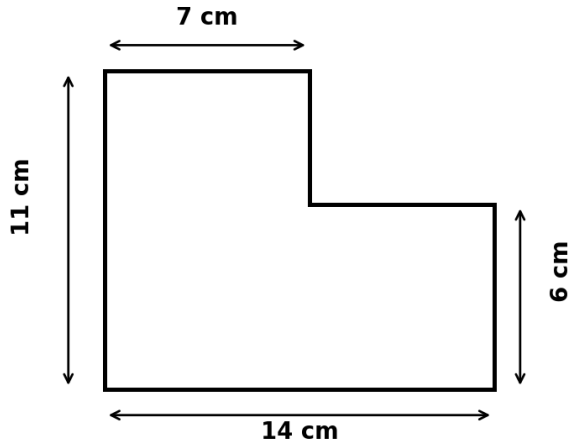
A large circle has radius 8 cm. A small circle of radius 5 cm is cut from its centre.

Find the shaded area that remains. Give your answer in terms of π.

(3 marks)

[Problem Solving]

10.



Find the area of the L-shaped compound figure.

(3 marks)

Section B — Higher

Worked Examples

[Fluency]

Find the exact area and perimeter of a sector with radius 12 cm and angle 135°.

$$\text{Area} = \frac{135}{360}\pi r^2 = \frac{3}{8} \times 144\pi = 54\pi \text{ cm}^2$$

$$\text{Arc} = \frac{135}{360} \times 2\pi r = \frac{3}{8} \times 24\pi = 9\pi \text{ cm}$$

Perimeter = 9π + 24 cm

[Reasoning]

The area of a circle is 75 cm². Find the radius.

$$\pi r^2 = 75 \Rightarrow r = \sqrt{\frac{75}{\pi}} \approx 4.89 \text{ cm}$$

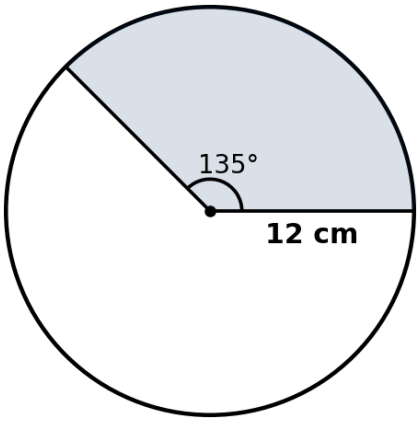
[Problem Solving]

Find the area of triangle with sides 8 cm, 10 cm and included angle 35°.

$$\text{Area} = \frac{1}{2}ab\sin C = \frac{1}{2} \times 8 \times 10 \times \sin 35^\circ \approx 22.9 \text{ cm}^2$$

[Fluency]

1.



Find the exact area and perimeter of the sector.
Give your answers in terms of π.

(4 marks)

[Fluency]

2.

The area of a circle is 75 cm².

Find the radius. Give your answer correct to 2 decimal places.

(2 marks)

[Fluency]

3.

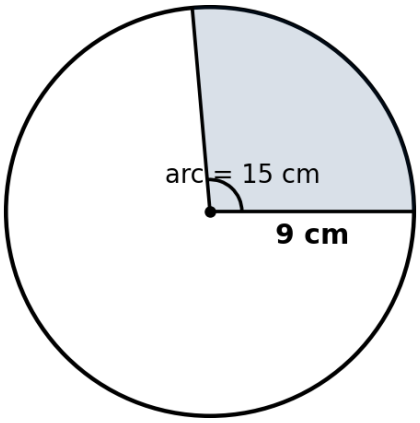
An annulus has outer radius 10 cm and inner radius 6 cm.

Find the area of the annulus. Give your answer in terms of π.

(2 marks)

[Reasoning]

4.



An arc has length 15 cm and the circle has radius 9 cm.

Find the angle at the centre. Give your answer to 1 decimal place.

(3 marks)

[Reasoning]

5.

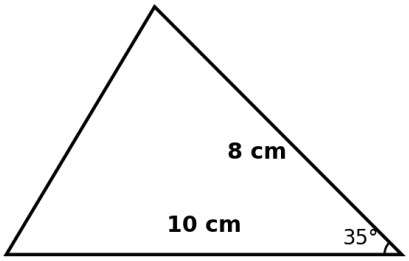
A sector has perimeter 40 cm and radius 12 cm.

Find the angle of the sector. Give your answer to 1 decimal place.

(3 marks)

[Reasoning]

6.

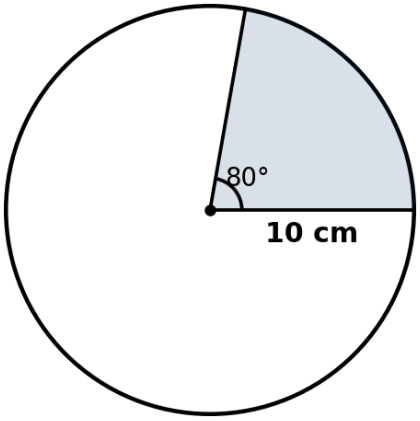


Find the area of the triangle.
Give your answer to 1 decimal place.

(3 marks)

[Problem Solving]

7.

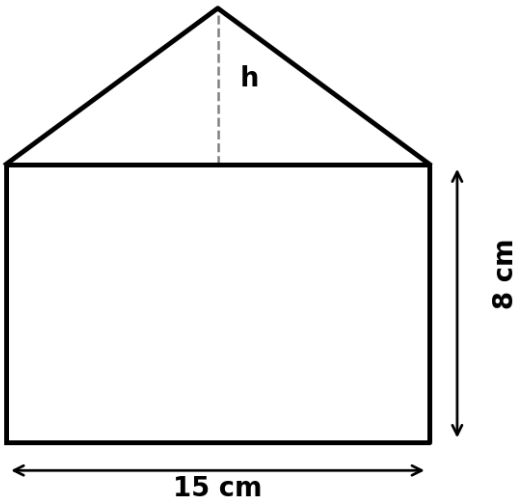


Find the area of the minor segment.
Give your answer to 1 decimal place.

(4 marks)

[Problem Solving]

8.



A composite shape is made from a rectangle and a semicircle placed on top of the longer side.
The rectangle is 15 cm × 8 cm.
Find the total area. Give your answer to 1 decimal place.

(4 marks)

[Problem Solving]

9.

A rectangular lawn is 20 m by 15 m. A path of uniform width 1.5 m runs around the inside edge.
Find the area of the path.

(3 marks)

[Problem Solving]

10.

A kite has diagonals of length 10 cm and 16 cm.
Find the area of the kite.

(2 marks)