

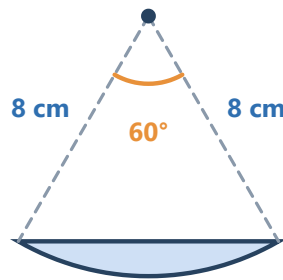
GCSE Maths: Segments, algebraic forms and exact answers (Higher): answers

GCSE Maths - Perimeter, Area and Circles - Higher - Lesson 18.9

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch18-perimeter-area-circles/higher/segments-algebraic-forms-and-exact-answers/

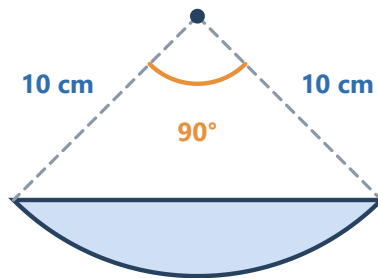
Exercise 18I Segments, algebraic forms and exact answers Calculator allowed

- 1 Work out the area of the shaded segment. Give your answer to 2 decimal places.



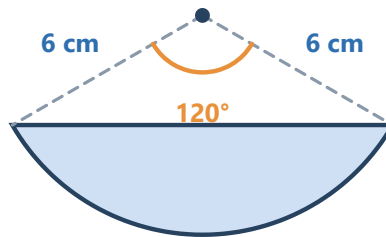
Answer: 5.80 cm²

- 2 Work out the area of the shaded segment. Give your answer to 1 decimal place.



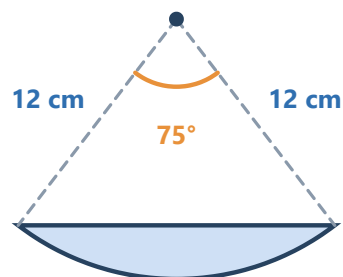
Answer: 28.5 cm²

- 3 Work out the area of the shaded segment. Give your answer to 2 decimal places.



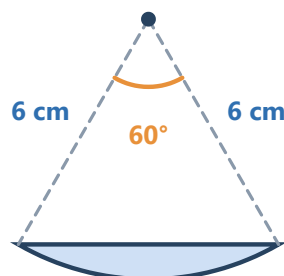
Answer: 22.11 cm^2

- 4 Work out the area of the shaded segment. Give your answer to 3 significant figures.



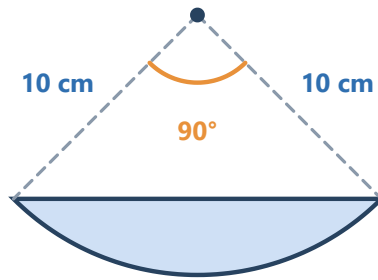
Answer: 24.7 cm^2

- 5 Work out the exact area of the shaded segment, in terms of π and $\sqrt{3}$.



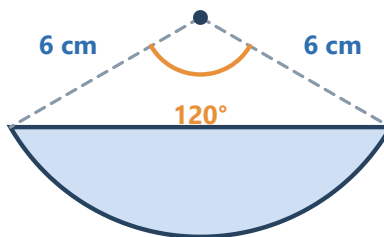
Answer: $(6\pi - 9\sqrt{3}) \text{ cm}^2$

- 6 Work out the exact area of the shaded segment, in terms of π .



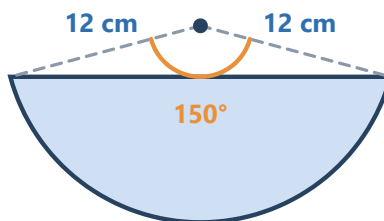
Answer: $(25\pi - 50) \text{ cm}^2$

- 7 Work out the exact area of the shaded segment, in terms of π and $\sqrt{3}$.



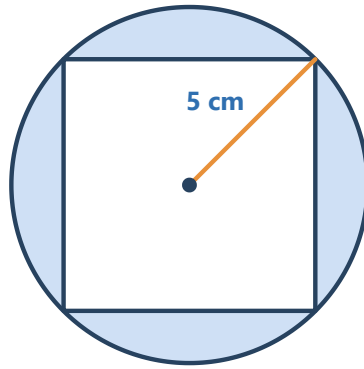
Answer: $(12\pi - 9\sqrt{3}) \text{ cm}^2$

- 8 Work out the exact area of the shaded segment, in terms of π .



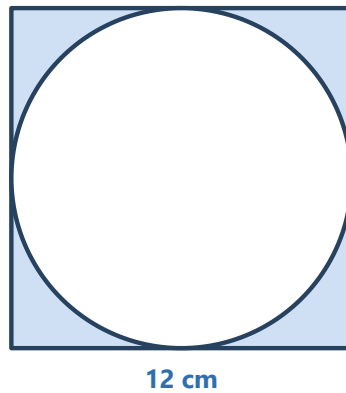
Answer: $(60\pi - 36) \text{ cm}^2$

- 9 A square is drawn inside a circle of radius 5 cm so that its corners touch the circle. Work out the exact shaded area.



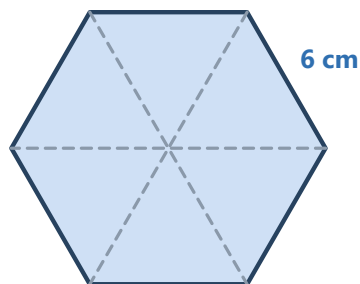
Answer: $(25\pi - 50) \text{ cm}^2$

- 10** A circle is drawn inside a square of side 12 cm so that it touches all four sides. Work out the exact shaded area.



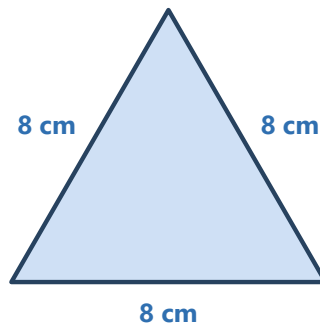
Answer: $(144 - 36\pi) \text{ cm}^2$

- 11** A regular hexagon has sides of 6 cm. Work out its exact area.



Answer: $54\sqrt{3} \text{ cm}^2$

- 12** The triangle is equilateral with sides of 8 cm. Work out (a) its perimeter and (b) its exact area.



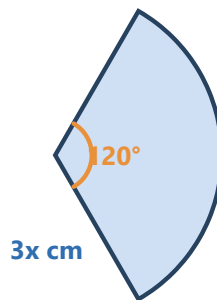
(a) perimeter

Answer: 24 cm

(b) exact area

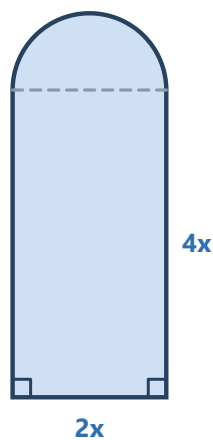
Answer: $16\sqrt{3} \text{ cm}^2$

13 A sector has radius $3x \text{ cm}$ and angle 120° . Show that its area is $3\pi x^2 \text{ cm}^2$.



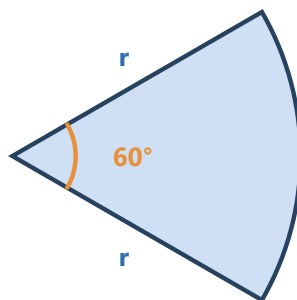
Answer: $3\pi x^2 \text{ cm}^2$

14 The shape is a rectangle $4x \text{ cm}$ by $2x \text{ cm}$ with a semicircle of diameter $2x \text{ cm}$ on one end. Show that its area is $(16 + \pi)x^2 \div 2 \text{ cm}^2$.



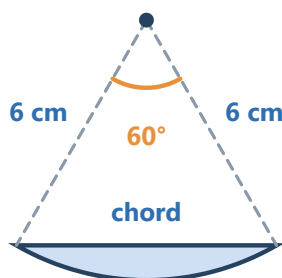
Answer: $(16 + \pi)x^2 \div 2$

- 15 A sector has radius r and angle 60° . Show that its perimeter is $r(\pi + 6) \div 3$.



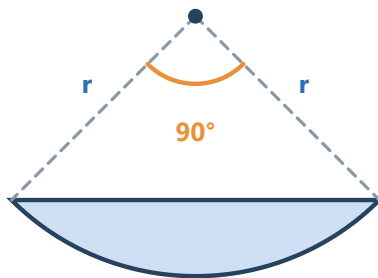
Answer: $r(\pi + 6) \div 3$

- 16 A segment is cut off a circle of radius 6 cm by a chord. The angle at the centre is 60° . Show that the perimeter of the segment is $(2\pi + 6)$ cm.



Answer: $(2\pi + 6)$ cm

- 17 The area of the shaded segment of a circle of radius r cm is calculated for angle 90° at the centre. Show that the area is $r^2(\pi - 2) \div 4$ cm².



Answer: $r^2(\pi - 2) \div 4$