Sector Areas and Arc Lengths

Grade 5 topic · Foundation and Higher · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Foundation students: aim for Questions 1–15 (56 marks) and have a go at the rest. Higher students: complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 76 marks.

Warm-up

1 A sector has radius 12 cm and angle 120°. Work out its area, to 3 significant figures. **[3 marks]**

Answer _____

2 A sector has radius 4 cm and angle 90°. Work out the length of its arc, to 3 significant figures. **[3 marks]**

Answer _____

3 A sector has radius 9 cm and angle 30°. Work out its area, to 3 significant figures. **[3 marks]**

Answer _____

4 A sector has radius 8 cm and angle 150°. Work out the length of its arc, to 3 significant figures. **[3 marks]**

Answer _____

5 A sector has radius 7 cm and angle 270°. Work out its area, to 3 significant figures. **[3 marks]**

Answer _____

Core

6 A sector has radius 11 cm and angle 90°. Work out its perimeter, to 3 significant figures. **[4 marks]**

Answer _____

7 A sector has radius 7 cm and angle 90°. Give its area in terms of π. **[3 marks]**

Answer _____

8 The arc length of a sector is 3.33333π cm and the radius is 12 cm. Work out the angle. **[4 marks]**

Answer _____

9 A semicircle has radius 10 cm. Work out its area and its perimeter in terms of π. **[4 marks]**

Answer _____

10 A sector has area 123.2 cm² and radius 14 cm. What fraction of the full circle is the sector? **[3 marks]**

Answer _____

Stretch

11 A sector of a circle has angle 72° and area 50.9 cm². Work out the radius. **[5 marks]**

Answer _____

12 A sector has radius 13 cm and arc length 16.3 cm. Work out the angle to the nearest degree. **[5 marks]**

Answer _____

13 A pizza of radius 15 cm is cut into 8 equal slices. Work out the area of one slice to 3 significant figures. **[4 marks]**

Answer _____

14 A clock's minute hand is 10 cm long. How far does the tip travel in 20 minutes? Give your answer to 3 significant figures. **[4 marks]**

Answer _____

15 A sector has radius 4 cm and angle 90°. A cone is made by joining the straight edges of this sector. Work out the circumference of the base of the cone, to 3 significant figures. **[5 marks]**

Answer _____

Challenge

16 A sector has radius 11 cm and perimeter 39.3 cm. Work out its angle to the nearest degree. **[5 marks]**

Answer _____

17 A sector with angle 60° has area 13.09 cm². Show the radius is 5 cm. **[4 marks]**

Answer _____

18 A square of side 10 cm has a quarter circle of radius 10 cm drawn from one corner. Work out the area of the square outside the quarter circle, to 3 significant figures. **[5 marks]**

Answer _____

19 A sector has radius 4 cm and angle 60°. Work out its area, to 3 significant figures. **[3 marks]**

Answer _____

20 A sector has radius 11 cm and angle 60°. Work out its area, to 3 significant figures. **[3 marks]**

Answer _____