# Foundation Check In - 10.02 Perimeter calculations

1. Calculate the circumference of a circle of radius 6 cm.
2. Calculate the perimeter of the shape below.

4 cm

1. Calculate the perimeter of the shape below.

8 cm

10 cm

1. Calculate the length of the arc of a sector of 260° and diameter 18 cm.
2. Calculate the length of the arc of a sector of 130° and radius 12 cm.
3. Dawn calculates the arc length of this sector as 14.4 cm. Explain what she has done wrong.

110°

15 cm

1. Choi is calculating the arc length of this sector. Her working is shown below. Explain what she has done wrong.

15 cm

cm

200°

1. A sector has an arc length of 4π cm. The arc is  of the circumference of the circle. Show that the length of the diameter of the circle is 20 cm.
2. An earring is made from a sector of a circle with diameter 20 cm. The edge of the sector is trimmed with wire. Calculate the total length of wire needed to make a **pair** of earrings.

64°

1. A sector of a circle of diameter 50 cm has an arc length of 13 cm. Calculate the angle of the sector to the nearest degree.

**Extension**

The window above every classroom door in a school is in the shape of a semicircle. The window is made up of three glass sections of equal size, set in a wooden frame.

60 cm

A number of the windows have loose glass sections. 12 windows require one section of glass to be secured, 5 windows require two sections of glass to be secured and 2 windows need all three sections of glass to be secured.

Sealing tape is used to fasten the glass sections by placing tape around the **total** edge of each glass section. Sealing tape is sold in one metre rolls, which cost £7.50 each.

Work out the cost of the sealing tape required to secure all of the loose glass sections.

Answers

1. 37.7 cm (1 dp)
2. 14.3 cm (1 dp)
3. 41.7 cm (1 dp)
4. 40.8 cm (1 dp)
5. 27.2 cm (1 dp)
6. She has used the radius, not the diameter.
7. She has used the angle 200°, not 160°.
8. 



cm

1. 62.3 cm (1 dp)
2. 30°

**Extension**

Perimeter of one glass section = m

 sections of glass to be secured

m

£195

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| **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |  | **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |
| AO1 | 1 | Calculate circumference of a circle |  |  |  |  | AO1 | 1 | Calculate circumference of a circle |  |  |  |
| AO1 | 2 | Calculate perimeter of a quadrant |  |  |  |  | AO1 | 2 | Calculate perimeter of a quadrant |  |  |  |
| AO1 | 3 | Calculate perimeter of compound shape |  |  |  |  | AO1 | 3 | Calculate perimeter of compound shape |  |  |  |
| AO1 | 4 | Calculate arc length given diameter |  |  |  |  | AO1 | 4 | Calculate arc length given diameter |  |  |  |
| AO1 | 5 | Calculate arc length given radius |  |  |  |  | AO1 | 5 | Calculate arc length given radius |  |  |  |
| AO2 | 6 | Identify error in calculated arc length |  |  |  |  | AO2 | 6 | Identify error in calculated arc length |  |  |  |
| AO2 | 7 | Identify error in calculated arc length |  |  |  |  | AO2 | 7 | Identify error in calculated arc length |  |  |  |
| AO2 | 8 | Calculate diameter of sector |  |  |  |  | AO2 | 8 | Calculate diameter of sector |  |  |  |
| AO3 | 9 | Solve a problem involving perimeter |  |  |  |  | AO3 | 9 | Solve a problem involving perimeter |  |  |  |
| AO3 | 10 | Solve a problem involving angle of a sector |  |  |  |  | AO3 | 10 | Solve a problem involving angle of a sector |  |  |  |
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| AO1 | 5 | Calculate arc length given radius |  |  |  |  | AO1 | 5 | Calculate arc length given radius |  |  |  |
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