# 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

We’d like to know your view on the resources we produce. By clicking on ‘Like’ or ‘Dislike’ you can help us to ensure that our resources work for you. When the email template pops up please add additional comments if you wish and then just click ‘Send’. Thank you.

If you do not currently offer this OCR qualification but would like to do so, please complete the Expression of Interest Form which can be found here: [www.ocr.org.uk/expression-of-interest](http://www.ocr.org.uk/expression-of-interest)

**OCR Resources**: *the small print*OCR’s resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources.
© OCR 2016 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

OCR acknowledges the use of the following content: n/a

Please get in touch if you want to discuss the accessibility of resources we offer to support delivery of our qualifications: resources.feedback@ocr.org.uk

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

**OCR Resources**: *the small print*OCR’s resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources.
© OCR 2014 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

**OCR Resources**: *the small print*OCR’s resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources.
© OCR 2014 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

OCR acknowledges the use of the following content::
⚫ Garden: Elen Eliseeva/Shutterstock.com ⚫ Flag: Pixel Europe/Shutterstock.com

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **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 |  |  |  |