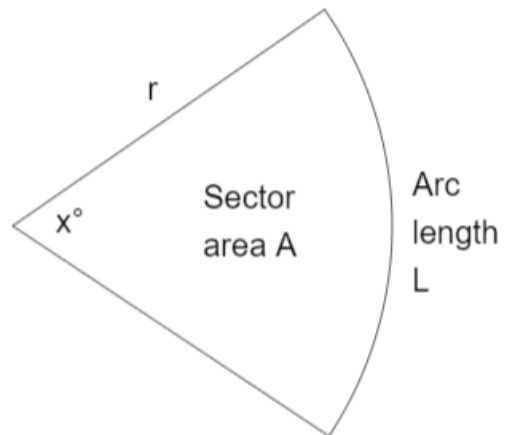


National 5: Arcs and Sectors

To fit more questions onto this worksheet, we will always use the following letters:

- x° = the angle at the centre
- r = the radius of the sector
- L = the length of the arc
- A = the area of the sector.



Please note that the angle x° might be really small (example: 10°) or really big (example: 300°) so the sector won't always look like the example to the right.

You do not have to draw the sector in each question.

- Q1**
- | | | |
|--|--|--|
| a) $x = 30^\circ$, $r = 7$ cm. Find L . | b) $x = 65^\circ$, $r = 5$ cm. Find L . | c) $x = 45^\circ$, $r = 6$ mm. Find L . |
| d) $x = 120^\circ$, $r = 3$ m. Find L . | e) $x = 270^\circ$, $r = 1.8$ m. Find L . | f) $x = 28^\circ$, $r = 8$ cm. Find L . |
- Q2**
- | | | |
|---|--|--|
| a) $x = 6^\circ$, $r = 7$ cm. Find A . | b) $x = 54^\circ$, $r = 8$ mm. Find A . | c) $x = 92^\circ$, $r = 4$ cm. Find A . |
| d) $x = 231^\circ$, $r = 5$ cm. Find A . | e) $x = 28^\circ$, $r = 3.5$ cm. Find A . | f) $x = 6.2^\circ$, $r = 3$ m. Find A . |
- Q3** Non-calculator. Approximate π as 3.14. Remember to simplify the angle fraction so that you end up with 3.14 times a number that only has one significant figure.
- | | | |
|---|--|---|
| a) $x = 90^\circ$, $r = 12$ cm. Find L . | b) $x = 60^\circ$, $r = 30$ cm. Find L . | c) $x = 120^\circ$, $r = 12$ m. Find L . |
| d) $x = 45^\circ$, $r = 80$ m. Find L . | e) $x = 240^\circ$, $r = 30$ cm. Find L . | f) $x = 72^\circ$, $r = 5$ cm. Find L . |
- Q4** Non-calculator. Approximate π as 3.14. Use a similar calculation strategy to Q3.
- | | | |
|---|--|---|
| a) $x = 90^\circ$, $r = 6$ cm. Find A . | b) $x = 60^\circ$, $r = 6$ cm. Find A . | c) $x = 120^\circ$, $r = 3$ cm. Find A . |
| d) $x = 45^\circ$, $r = 40$ cm. Find A . | e) $x = 180^\circ$, $r = 10$ cm. Find A . | f) $x = 72^\circ$, $r = 5$ m. Find A . |
- Q5** Working backwards. You may use a calculator!
- | | | |
|--|--|---|
| a) $L = 15$ cm, $x = 30^\circ$. Find r . | b) $L = 3.5$ m, $r = 2.1$ m. Find x° . | c) $L = 8$ m, $r = 3$ m. Find x° . |
| d) $A = 20$ cm ² , $r = 5$ cm. Find x° . | e) $A = 9.6$ m ² , $x = 171^\circ$. Find r . | f) $A = 4$ cm ² , $x = 3^\circ$. Find r . |