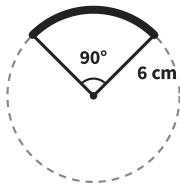


Arc Length

1 arc = fraction $\times$ circumference

Find the arc length to 1 decimal place.

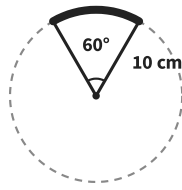


$$\text{Arc} = \frac{90}{360} \times \pi \times 12$$

fraction of the circle circumference

Answer 9.4 cm

2 Find the arc length to 1 decimal place.

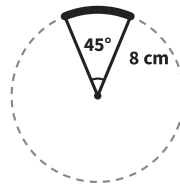


$$\text{Arc} = \frac{60}{360} \times \pi \times 20$$

fraction of the circle circumference

Answer 10.5 cm

3 Find the arc length to 1 decimal place.

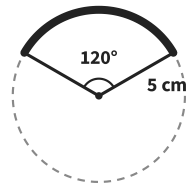


$$\text{Arc} = \frac{45}{360} \times \pi \times 16$$

fraction of the circle circumference

Answer 6.3 cm

4 Find the arc length to 1 decimal place.



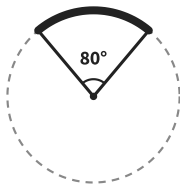
$$\text{Arc} = \frac{120}{360} \times \pi \times 10$$

fraction of the circle circumference

Answer 10.5 cm

5 *Notice the change!*

The circle has diameter 14 cm. Find the arc length to 1 decimal place.

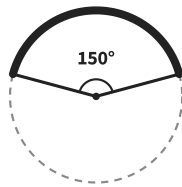


$$\text{Arc} = \frac{80}{360} \times \pi \times 14$$

fraction of the circle circumference

Answer 9.8 cm

6 The circle has diameter 9 cm. Find the arc length to 1 decimal place.



$$\text{Arc} = \frac{150}{360} \times \pi \times 9$$

fraction of the circle circumference

Answer 11.8 cm

7 A pizza has a diameter of 30 cm. It is cut into 8 equal slices. Find the length of the crust on one slice to 1 decimal place.

$$\pi \times 30 \div 8$$

Answer 11.8 cm

8 An arc of a circle of radius 6 cm has a length of 2π cm. Find the angle of the sector.

$$\frac{2\pi}{12\pi} = \frac{1}{6}$$

Answer 60°

Arc Length further practice

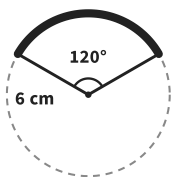
9 Find the arc length to 1 decimal place.



$$\frac{240}{360} \times \pi \times 18$$

Answer 37.7 cm

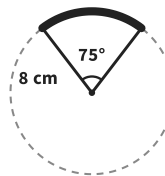
10 Find the arc length. Give your answer in terms of π .



$$\frac{120}{360} \times \pi \times 12 = 4\pi$$

Answer 4π cm

11 Find the perimeter of the sector to 1 decimal place.

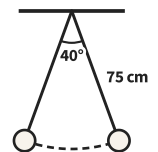


$$\text{arc} = \frac{75}{360} \times \pi \times 16 = 10.472$$

$$10.472 + 8 + 8$$

Perimeter 26.5 cm

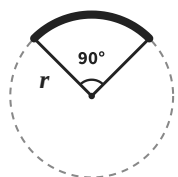
12 A pendulum is 75 cm long. Its end swings from one side to the other through an angle of 40°. How far does the end travel? Give your answer to 1 decimal place.



$$\frac{40}{360} \times \pi \times 150$$

Answer 52.4 cm

13 The arc is 5π cm long. Find the radius, r .

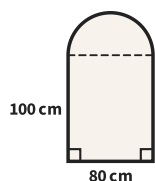


$$\text{circumference} = 5\pi \times 4 = 20\pi$$

$$\text{diameter } 20 \text{ cm}$$

$r =$ 10 cm

14 A window is a rectangle with a semicircle on top. Find the perimeter of the window to 1 decimal place.



$$\text{semicircle} = \pi \times 80 \div 2 = 125.664$$

$$100 + 80 + 100 + 125.664$$

Perimeter 405.7 cm

15 The minute hand of a clock is 9 cm long. How far does its tip travel in 20 minutes? Give your answer to 1 decimal place.

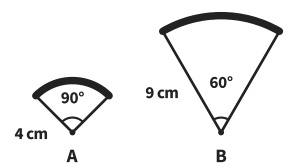


$$20 \div 60 \times 360 = 120^\circ$$

$$\frac{120}{360} \times \pi \times 18$$

Answer 18.8 cm

16 Mia says sector A must have the longer arc because its angle is bigger. Is Mia right? Explain.



$$A: \frac{90}{360} \times \pi \times 8 = 6.3 \text{ cm}$$

$$B: \frac{60}{360} \times \pi \times 18 = 9.4 \text{ cm}$$

Answer No, B is longer