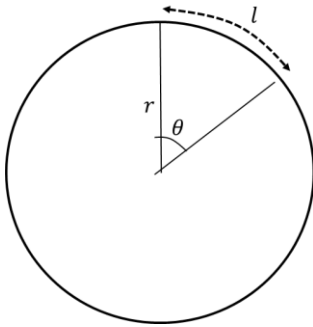


Arc length



Arc length in degrees =

Arc length in radians =

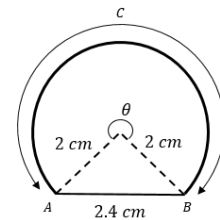
Examples

1. Find the length of the arc of a circle of radius 5.2 cm, given that the arc subtends an angle of 0.8 radians at the centre of the circle.

2. An arc AB of a circle with radius 7 cm and centre O has a length of 2.45 cm. Find the angle $\angle AOB$ subtended by the arc at the centre of the circle

3. An arc AB of a circle, with centre O and radius r cm, subtends an angle of θ radians at O . The perimeter of the sector AOB is P cm. Express r in terms of P and θ .

4. The border of a garden pond consists of a straight edge AB of length 2.4m, and a curved part C , as shown in the diagram. The curve part is an arc of a circle, centre O and radius 2m. Find the length of C .



Test Your Understanding

Figure 1 shows the triangle ABC , with $AB = 8\text{ cm}$, $AC = 11\text{ cm}$ and $\angle BAC = 0.7$ radians. The arc BD , where D lies on AC , is an arc of a circle with centre A and radius 8 cm . The region R , shown shaded in Figure 1, is bounded by the straight lines BC and CD and the arc BD .

Find

- The length of the arc BD .
- The perimeter of R , giving your answer to 3 significant figures.

