

Topic: Radians and arc length

Question: What is the radian measure of an arc of a circle with a radius of 12 centimeters and an associated central angle of 30° ?

Answer choices:

A π

B $\frac{\pi}{2}$

C $\frac{2\pi}{3}$

D 2π



Solution: D

We can only use an angle defined in radians in the arc length formula, so we'll need to convert 30° to radians.

$$30^\circ \left(\frac{\pi}{180^\circ} \right) = \frac{\pi}{6}$$

Now we'll plug what we know into the arc length formula.

$$s = r\theta$$

$$s = 12 \left(\frac{\pi}{6} \right)$$

$$s = 2\pi$$



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Question: In radius of circle O is 25, and the measure of arc AB is 150° . Find the approximate length of arc AB .

Answer choices:

- A 65
- B 94
- C 21
- D 131



Solution: A

We can only use an angle defined in radians in the arc length formula, so we'll need to convert 150° to radians.

$$150^\circ \left(\frac{\pi}{180^\circ} \right) = \frac{5\pi}{6}$$

Now we'll plug what we know into the arc length formula.

$$s = r\theta$$

$$s = 25 \left(\frac{5\pi}{6} \right)$$

$$s \approx 65$$



Topic: Radians and arc length**Question:** Approximately how many radians make up 252° ?**Answer choices:**

- A 1.4
- B 4.4
- C 0.4
- D 2.2



Solution: B

If we want to convert an angle from degrees to radians, we multiply it by $\pi/180^\circ$.

$$252^\circ \left(\frac{\pi}{180^\circ} \right)$$

$$1.4\pi$$

$$1.4(3.14)$$

$$4.4$$

