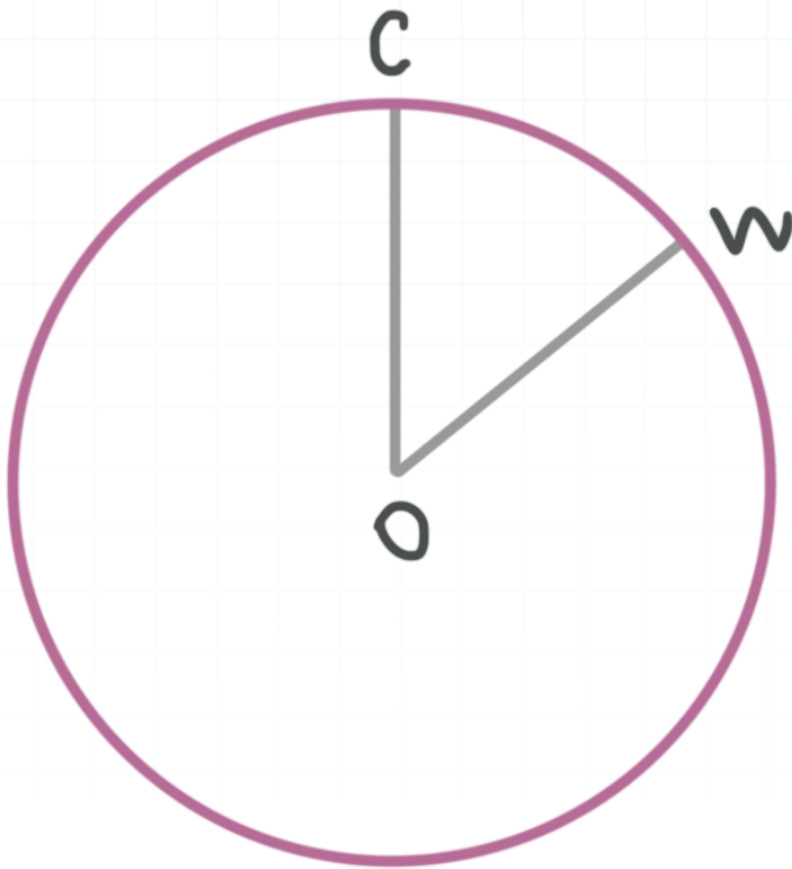


Topic: Arc length

Question: The center of the circle in the figure is at O , the length of \overline{OC} is 18, and $m\angle WOC = 40^\circ$. What is the length of \widehat{WC} ?

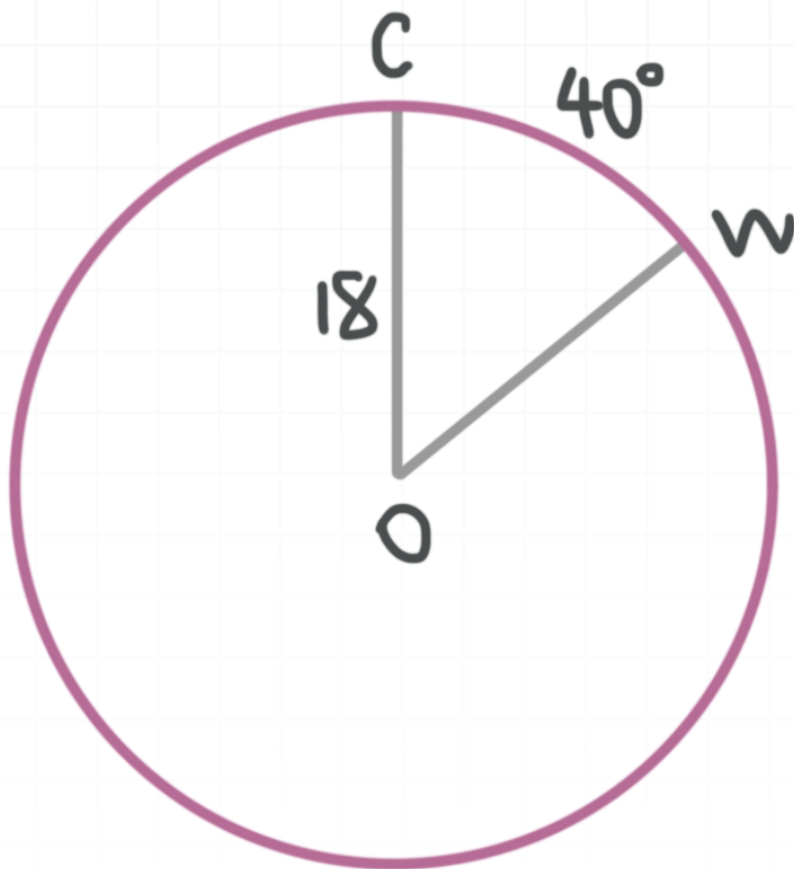
**Answer choices:**

- A 4π
- B 8π
- C 10π
- D 12π



Solution: A

We know that the measure of the central angle that corresponds to \widehat{WC} is 40° , and that \overline{OC} is a radius, so the radius of the circle is 18.



Plugging the values of m and r into the arc length formula gives

$$L = \frac{m}{360} \cdot 2\pi r$$

$$L = \frac{40}{360} \cdot 2\pi \cdot 18$$

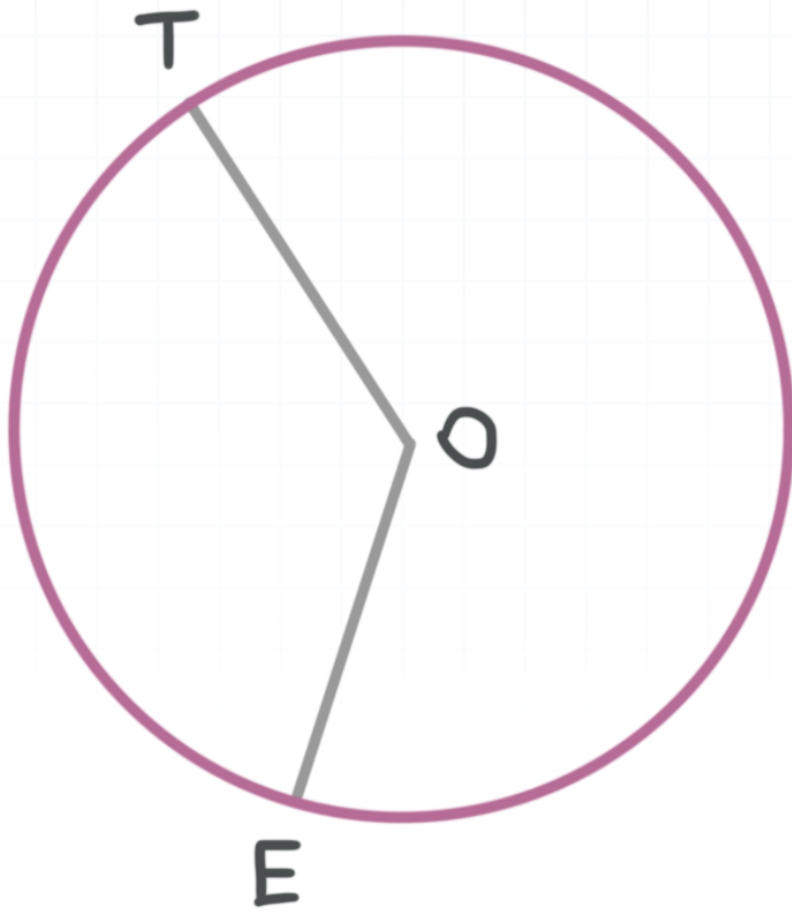
$$L = \frac{1}{9} \cdot 36\pi$$

$$L = 4\pi$$



Topic: Arc length

Question: The center of the circle in the figure is at O , the length of \overline{OT} is 6, and $m\angle TOE = 150^\circ$. What is the length of \widehat{TE} ?

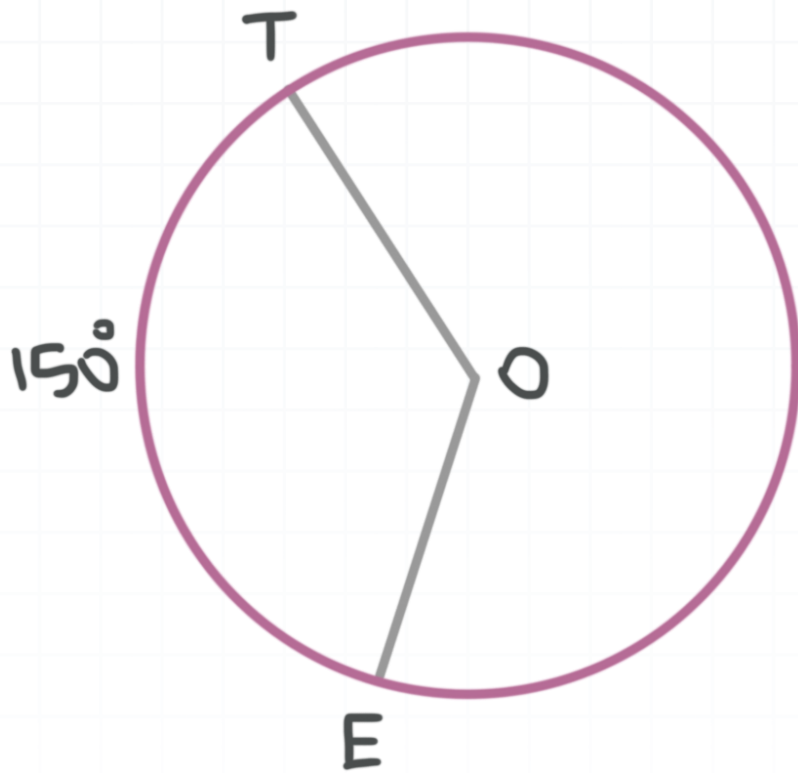
**Answer choices:**

- A 4π
- B 5π
- C 6π
- D 12π



Solution: B

We know that the measure of the central angle that corresponds to \widehat{TE} is 150° , and that \overline{OT} is a radius, so the radius of the circle is 6.



Plugging the values of m and r into the arc length formula gives

$$L = \frac{m}{360} \cdot 2\pi r$$

$$L = \frac{150}{360} \cdot 2\pi \cdot 6$$

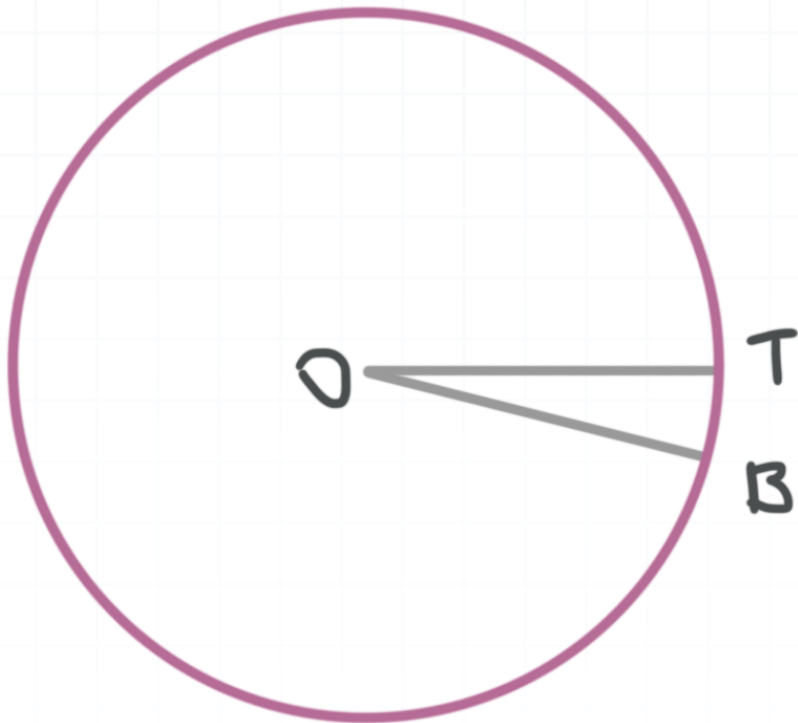
$$L = \frac{5}{12} \cdot 12\pi$$

$$L = 5\pi$$



Topic: Arc length

Question: The center of the circle in the figure is at O , the length of \overline{OT} is 15, and the length of \widehat{BT} is $5\pi/6$. What is the measure of $\angle BOT$?

**Answer choices:**

- A 5°
- B 8°
- C 10°
- D 12°



Solution: C

We know that the length of \widehat{BT} is $5\pi/6$ and that the radius of the circle is 15. Substituting these values into the arc length formula gives

$$L = \frac{m}{360} \cdot 2\pi r$$

$$\frac{5\pi}{6} = \frac{m}{360} \cdot 2\pi \cdot 15$$

$$\frac{5\pi}{6} = \frac{30\pi m}{360}$$

$$\frac{5\pi}{6} = \frac{\pi m}{12}$$

$$10\pi = \pi m$$

$$m = 10$$

So $m\angle BOT = 10^\circ$.

