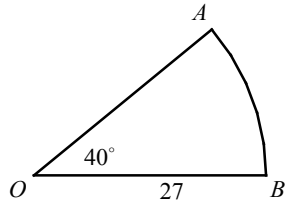## Exercises - Arc Lengths and Areas of Sectors

**Questions 1 and 2 refer to the following information.**



In the figure above, $\overgroup{AB}$ is an arc of a circle with radius 27 cm.
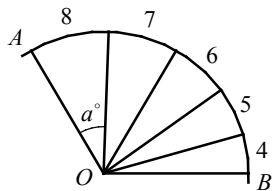
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**1**

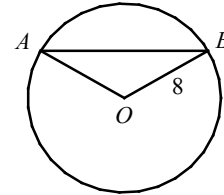If the length of arc $AB$ is $k\pi$, what is the value of $k$ ?

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**2**

If the area of sector $OAB$ is $n\pi$, what is the value of $n$ ?

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**3**



The figure above shows arcs of length 8, 7, 6, 5, and 4. If $m\overgroup{AB} = 120$, what is the degree measure of angle $a$ ?
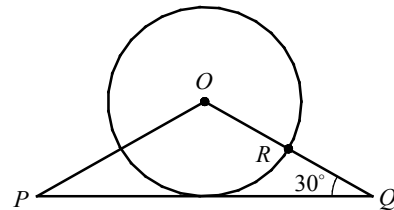
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**4**



In the figure above, the radius of the circle is 8 and $m\angle AOB = 120°$. What is the length of $\overline{AB}$ ?

A) $8\sqrt{2}$

B) $8\sqrt{3}$

C) $12\sqrt{2}$

D) $12\sqrt{3}$

---

**5**



In the figure above, $OP = OQ$ and $\overline{PQ}$ is tangent to circle $O$. If the radius of circle $O$ is 8, what is the length of $\overline{QR}$ ?

A) $10(\sqrt{2} - 1)$

B) $6$

C) $10(\sqrt{3} - 1)$

D) $8$