

Geometry - Arc Length and Sector Area - Quiz

Common Core G-C.B.5 · maths-pdf.fr/en/

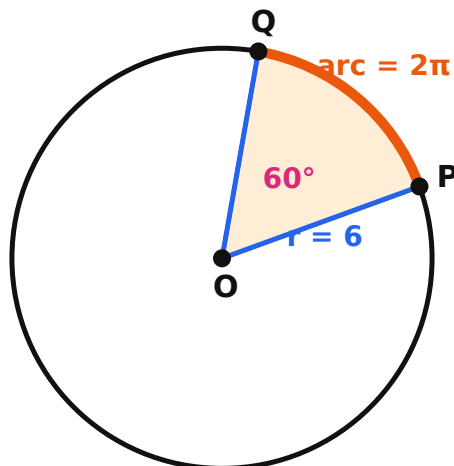
Name: _____ Class: _____ Date: ____/____/____

Test your understanding of arc length and sectors with this 10-question multiple-choice quiz. Each question has one correct answer, and the explanation after it names the typical mistake behind the wrong choices. Take it after the lesson or before the test.

Geometry · Common Core State Standards: **G-C.B.5**

Questions

Question 1



$$\text{Arc length} = (60/360) \text{ of the circumference} = (1/6)(2\pi \cdot 6) = 2\pi.$$

The sector has radius 6 and central angle 60 degrees. What is the arc length?

- A. 6 pi
- B. 12 pi
- C. 2 pi
- D. pi

Question 2

What is the area of a sector with radius 4 and central angle 90 degrees?

- A. 4 pi
- B. 16 pi

- C. 8π
- D. 2π

Question 3

How many radians are in 180 degrees?

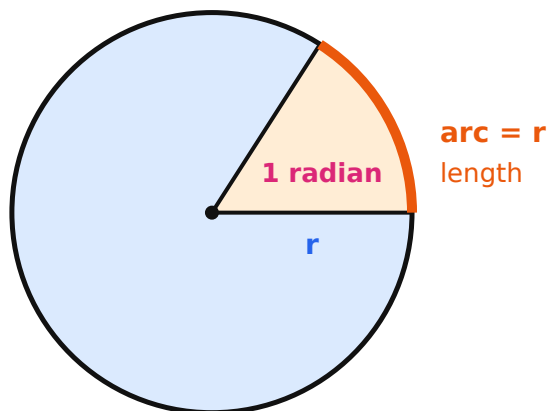
- A. π
- B. 2π
- C. $\pi / 2$
- D. 180

Question 4

What is 90 degrees in radians?

- A. π
- B. $\pi / 2$
- C. $\pi / 4$
- D. 2π

Question 5



One radian: the arc has the same length as the radius.

An arc has the same length as the radius. What is the central angle?

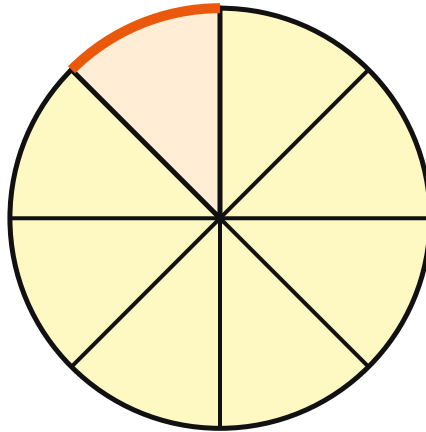
- A. 1 radian
- B. 1 degree
- C. π radians
- D. 57 radians

Question 6

On a circle of radius 10, an arc has length 25. What is the central angle in radians?

- A. 250
- B. 2.5
- C. 0.4
- D. 25

Question 7



A pizza cut into 8 equal slices: each slice is a sector of 45° .

A pizza of radius 8 is cut into 8 equal slices. What is the central angle of one slice?

- A. 8 degrees
- B. 45 degrees
- C. 90 degrees
- D. 60 degrees

Question 8

A sector has radius 6 and area 6π . What is its central angle?

- A. 30 degrees
- B. 90 degrees
- C. 60 degrees
- D. 120 degrees

Question 9

If the radius of a sector doubles and the angle stays the same, the area

- A. Doubles
- B. Stays the same
- C. Becomes 8 times as large
- D. Becomes 4 times as large

Question 10

The length of a 45 degree arc on a circle with radius 16 is

- A. 8 pi
- B. 16 pi
- C. 2 pi
- D. 4 pi

Answers

1. **C** - The arc is $\frac{1}{6}$ of the circumference 12π , so 2π .
2. **A** - A quarter of the circle: $(\frac{1}{4})(16\pi) = 4\pi$. Using 16π forgets the fraction.
3. **A** - A half turn is π radians.
4. **B** - $90 \times \pi/180 = \pi/2$.
5. **A** - That is the definition of one radian, about 57.3 degrees.
6. **B** - $\theta = s / r = 25 / 10 = 2.5$.
7. **B** - $360 / 8 = 45$ degrees.
8. **C** - The fraction is $6\pi / 36\pi = \frac{1}{6}$, which is 60 degrees.
9. **D** - Area depends on r squared, so doubling r multiplies the area by 4.
10. **D** - $(\frac{45}{360})(2\pi \times 16) = (\frac{1}{8})(32\pi) = 4\pi$.

Remember

- Arc length = $(\text{angle}/360) \times 2\pi r$.
- Sector area = $(\text{angle}/360) \times \pi r^2$.
- 180 degrees = π radians.
- In radians: arc length $s = r$ times θ , area $A = (\frac{1}{2}) r^2 \theta$.
- A radian is the central angle whose arc length equals the radius.