

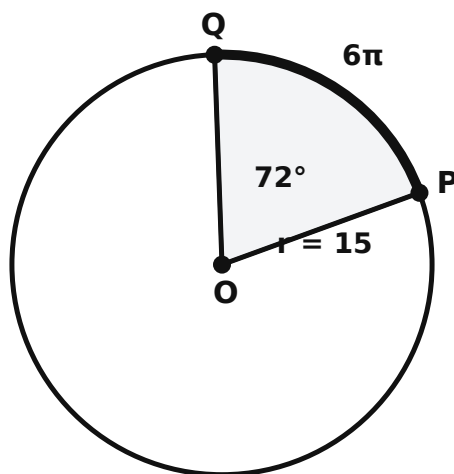
Geometry - Arc Length and Sector Area - Test Answer Key

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

Use this answer key and scoring guide for the arc length and sectors test. Each solution shows the full work, and the scoring note tells how the points are split between method and final answer. Partial credit is listed so that grading stays consistent from one paper to the next.

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

Question 1 - Arc length [2 pts]



$$\text{Arc} = 6\pi.$$

$$s = \frac{72}{360} \cdot 2\pi \cdot 15 = 6\pi = 18.85.$$

6π, about 18.85

Scoring: 1 point for the setup, 1 point for the answer.

Question 2 - Sector area [2 pts]

$$\frac{150}{360} \cdot \pi \cdot 12^2 = 60\pi$$

60π

Scoring: 1 point for the fraction, 1 point for the area.

Question 3 - Radians [3 pts]

- a. $225 \cdot \frac{\pi}{180} = \frac{5\pi}{4}$
b. $\frac{7\pi}{6} \cdot \frac{180}{\pi} = 210^\circ$
c. $s = 9 \cdot \frac{2\pi}{3} = 6\pi$

(a) $5\pi/4$; (b) 210° ; (c) 6π

Scoring: 1 point per part.

Question 4 - Find the radius [2 pts]

$$\frac{45}{360}\pi r^2 = 8\pi$$

$$r^2 = 64, \text{ so } r = 8.$$

$r = 8$

Scoring: 1 point for the equation, 1 point for r .

Question 5 - Central angle [2 pts]

$$\theta = \frac{s}{r} = \frac{5\pi}{12} \text{ radians.}$$

$$\frac{5\pi}{12} \cdot \frac{180}{\pi} = 75^\circ.$$

$5\pi/12 \text{ rad} = 75^\circ$

Scoring: 1 point each.

Question 6 - Sector perimeter [2 pts]

$$\text{Arc: } \frac{60}{360} \cdot 2\pi \cdot 9 = 3\pi = 9.4.$$

$$\text{Perimeter: } 9 + 9 + 3\pi = 27.4.$$

27.4 units

Scoring: 1 point for the arc, 1 point for the perimeter.

Question 7 - Pizza slices [2 pts]

Radius 9; each slice is $\frac{1}{6}$ of the circle.

$$\frac{1}{6} \cdot \pi \cdot 9^2 = 13.5\pi = 42.4.$$

42.4 square inches

Scoring: 1 point for the fraction, 1 point for the area.

Question 8 - Wheel turn [2 pts]

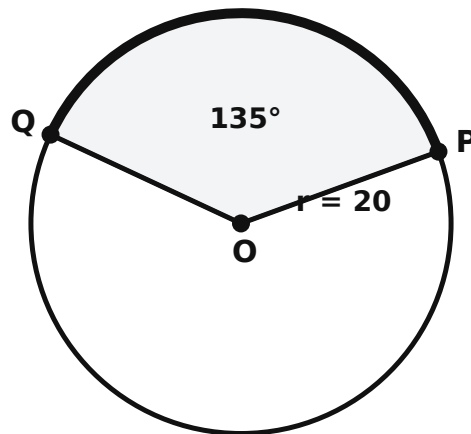
$$\theta = \frac{s}{r} = \frac{70}{14} = 5 \text{ radians.}$$

$$\frac{5}{2\pi} = 0.8 \text{ turns.}$$

5 radians; 0.8 turns

Scoring: 1 point each.

Question 9 - Lawn [3 pts]



Garden bed.

$$\text{Area: } \frac{135}{360} \cdot \pi \cdot 20^2 = 150\pi = 471.2 \text{ sq ft.}$$

$$\text{Arc: } \frac{135}{360} \cdot 2\pi \cdot 20 = 15\pi = 47.1 \text{ ft.}$$

471.2 sq ft; 47.1 ft

Scoring: 1 point for each setup, 1 point for both decimals.

Total
20 points