

SAT Circles Worksheet

Name: _____ Date: _____

Circle one answer for each question. Use the blank space for calculations. A calculator is allowed.

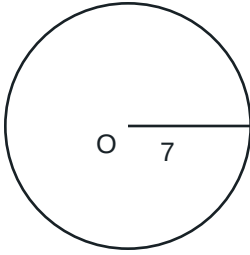
1. A circle has radius 5. What is its circumference?

- A. 5π
- B. 10π
- C. 20π
- D. 25π

2. What is the radius of the circle $(x - 2)^2 + (y + 3)^2 = 49$?

- A. 2
- B. 3
- C. 7
- D. 49

3.



The circle shown has radius 7. What is its area?

- A. 14π
- B. 28π
- C. 49π
- D. 98π

4. What is the center of $(x + 4)^2 + (y - 1)^2 = 16$?

- A. $(-4, 1)$
- B. $(4, -1)$
- C. $(4, 1)$
- D. $(-4, -1)$

5. A 90° central angle intercepts an arc in a circle of radius 8. What is the arc length?

- A. 2π
- B. 4π
- C. 8π
- D. 16π

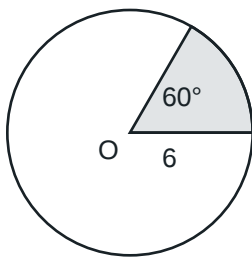
6. A circle has area 81π . What is its diameter?

- A. 9
- B. 18
- C. 40.5
- D. 81

7. What is the radius of $x^2 + y^2 - 6x + 4y = 12$?

- A. 3
- B. 4
- C. 5
- D. 12

8.



The shaded sector has central angle 60° and radius 6. What is its area?

- A. 3π
- B. 6π
- C. 12π
- D. 36π

9. A line is tangent to a circle at point T. What is the angle between the tangent and the radius ending at T?
- A. 30°
 - B. 45°
 - C. 60°
 - D. 90°
10. A circle centered at the origin passes through (6, 8). Which equation represents it?
- A. $x^2 + y^2 = 14$
 - B. $x^2 + y^2 = 28$
 - C. $x^2 + y^2 = 100$
 - D. $x^2 + y^2 = 196$

11. A circle has circumference 18π . What is its area?

- A. 18π
- B. 36π
- C. 81π
- D. 324π

12. In a circle with radius 4, a central angle of π radians intercepts an arc. What is the length of the arc?

- A. 2π
- B. 4π
- C. 8π
- D. 16π

Answer key

1 B · 2 C · 3 C · 4 A · 5 B · 6 B · 7 C · 8 B · 9 D · 10 C · 11 C · 12 B

1. B: 10π

Circumference is $2\pi r$. Substituting $r = 5$ gives 10π units.

2. C: 7

The right side is $r^2 = 49$, so the radius is 7. The constants inside the squares locate the center.

3. C: 49π

Area is πr^2 . With radius 7, the area is $\pi(49) = 49\pi$ square units.

4. A: $(-4, 1)$

Compare with $(x - h)^2 + (y - k)^2 = r^2$. Here $h = -4$ and $k = 1$.

5. B: 4π

The angle covers one quarter of the circle. One quarter of circumference 16π is 4π .

6. B: 18

From $\pi r^2 = 81\pi$, $r = 9$. Diameter is twice the radius, so it is 18.

7. C: 5

Complete the squares: $(x - 3)^2 + (y + 2)^2 = 12 + 9 + 4 = 25$. Thus $r = 5$.

8. B: 6π

A 60° sector is one sixth of a circle. Its area is $\frac{1}{6}\pi(6^2) = 6\pi$.

9. D: 90°

A radius drawn to a point of tangency is perpendicular to the tangent line, forming a 90° angle.

10. C: $x^2 + y^2 = 100$

The squared radius is the squared distance from the origin: $6^2 + 8^2 = 100$.

11. C: 81π

From $2\pi r = 18\pi$, $r = 9$. Then area = $\pi(9^2) = 81\pi$.

12. B: 4π

Arc length equals r times the angle in radians. Here $s = 4(\pi) = 4\pi$.