

## Area And Circumference Of A Circle Worksheet Questions and Answers PDF

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### Part 1: Building a Foundation

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**What is the formula for the circumference of a circle in terms of its radius?**

*Hint: Think about the relationship between radius and circumference.*

- A)  $C = \pi r^2$
- B)  $C = 2\pi r$  ✓
- C)  $C = \pi D$
- D)  $C = \pi / r$

■ The correct formula for the circumference of a circle in terms of its radius is  $C = 2\pi r$ .

**Which of the following statements are true about a circle? (Select all that apply)**

*Hint: Consider the definitions of diameter, circumference, and area.*

- A) The diameter is twice the radius. ✓
- B) The circumference is the distance around the circle. ✓
- C) The area is calculated as  $\pi D^2$ .
- D) The radius is half the diameter. ✓

■ The true statements are that the diameter is twice the radius, the circumference is the distance around the circle, and the radius is half the diameter.

**Explain in your own words what the term 'circumference' means in relation to a circle.**

*Hint: Think about what circumference represents geometrically.*

**Circumference refers to the total distance around the circle.**

**List the formulas for calculating the circumference and area of a circle.**

*Hint: Recall the standard formulas used in geometry.*

1. Circumference formula

**C =  $2\pi r$**

2. Area formula

**A =  $\pi r^2$**

**The formulas are  $C = 2\pi r$  for circumference and  $A = \pi r^2$  for area.**

## Part 2: Understanding and Application

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**If the diameter of a circle is 10 cm, what is its radius?**

*Hint: Remember the relationship between diameter and radius.*

- A) 5 cm ✓
- B) 10 cm
- C) 20 cm
- D) 15 cm

| The radius is half of the diameter, so the radius is 5 cm.

**Given a circle with a radius of 4 cm, which of the following are correct calculations? (Select all that apply)**

*Hint: Use the formulas for circumference and area to verify the calculations.*

- A) Circumference =  $8\pi$  cm ✓
- B) Area =  $16\pi$  cm<sup>2</sup> ✓
- C) Diameter = 8 cm ✓
- D) Circumference =  $16\pi$  cm

| The correct calculations are Circumference =  $8\pi$  cm, Area =  $16\pi$  cm<sup>2</sup>, and Diameter = 8 cm.

**A circular track has a diameter of 200 meters. Calculate the distance a runner would cover after completing one lap around the track.**

*Hint: Use the circumference formula to find the distance.*

| **The distance covered is the circumference, which is  $200\pi$  meters.**

**A circular garden has a radius of 7 meters. What is the approximate area of the garden?**

*Hint: Use the area formula  $A = \pi r^2$  to calculate.*

- A) 154 m<sup>2</sup> ✓
- B) 44 m<sup>2</sup>
- C) 98 m<sup>2</sup>
- D) 28 m<sup>2</sup>

| The approximate area of the garden is 154 m<sup>2</sup>.

### Part 3: Analysis, Evaluation, and Creation

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**If the circumference of a circle is directly proportional to its diameter, what happens to the circumference if the diameter is tripled?**

*Hint: Consider the definition of proportionality.*

- A) It remains the same.
- B) It doubles.
- C) It triples. ✓
- D) It quadruples.

■ If the diameter is tripled, the circumference also triples.

**Analyze the following scenarios and identify which are correct based on the relationship between radius, diameter, and circumference. (Select all that apply)**

*Hint: Use your knowledge of circle properties to evaluate each statement.*

- A) If the radius is 3 cm, the diameter is 6 cm. ✓
- B) If the diameter is 12 cm, the circumference is  $24\pi$  cm. ✓
- C) If the circumference is  $10\pi$  cm, the radius is 5 cm.
- D) If the radius is 8 cm, the circumference is  $16\pi$  cm. ✓

■ The correct statements are A, B, and D.

**Compare and contrast the formulas for circumference and area of a circle. How do they relate to each other?**

*Hint: Think about the components of each formula.*

■ The circumference formula involves the radius multiplied by  $2\pi$ , while the area formula involves the radius squared multiplied by  $\pi$ .

**A circular pool has a radius of 10 meters. If the cost to tile the pool is \$5 per square meter, what is the total cost to tile the entire pool area?**

*Hint: Calculate the area first and then multiply by the cost per square meter.*

- A) \$1570 ✓  
 B) \$3140  
 C) \$500  
 D) \$157

■ The total cost to tile the pool area is \$1570.

**Evaluate the following statements and select those that correctly describe the impact of changing a circle's radius on its area and circumference. (Select all that apply)**

*Hint: Consider how changes in radius affect both area and circumference.*

- A) Doubling the radius quadruples the area. ✓  
 B) Doubling the radius doubles the circumference.  
 C) Halving the radius halves the area.  
 D) Halving the radius quarters the circumference. ✓

■ The correct statements are A and D.

**Design a real-world problem involving a circular object (e.g., a pizza, a round table) and create a question that requires calculating either the area or circumference. Provide a solution to your problem.**

*Hint: Think about a scenario where you would need to calculate area or circumference.*

■ An example could be calculating the area of a pizza to determine how many slices can be made.