Area of Circles Introduction

Introduction to circle area: Mistakes and missing information

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Circle area is $A = \pi r^2$. The radius goes from center to edge; diameter $d = 2r$. Use $\pi \approx 3.14$ here. Doubling radius multiplies area by 4, not 2. A length times a length gives square units. Sketches are not to scale.

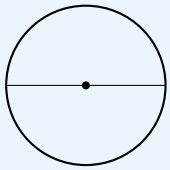
Worked example

Find the area of the circle. Use 3.14 for π.

1. Radius is half the diameter: $r = 7/2 = \frac{7}{2}$ cm.

2. $A \approx 3.14 \times \frac{7}{2}^2 = 3.14 \times \frac{49}{4} = \frac{7693}{200}$ cm^2.

Answer: Approximately 38.465 cm^2.

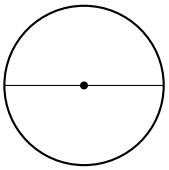


$d = 7$ cm

Practice Problems

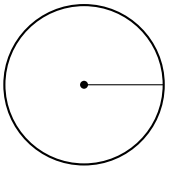
Show your thinking.

1. A student uses the full diameter as the radius. Correct the area. Use 3.14 for π.



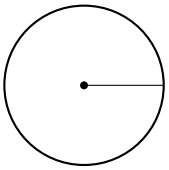
$d = 10$ cm

2. Find the missing nonnegative radius. Area is approximately $\frac{1256}{25}$ cm^2 using 3.14 for π; find radius. Use 3.14 for π.



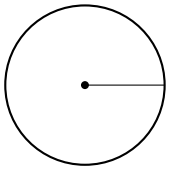
r cm

3. A student computes r^2 as $2r$. Correct the area. Use 3.14 for π.



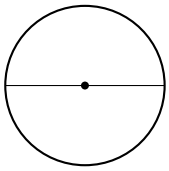
$r = 3$ cm

4. Reconstruct the radius from the stated area. Area is approximately $\frac{5024}{25}$ cm^2 using 3.14 for π; find radius. Use 3.14 for π.



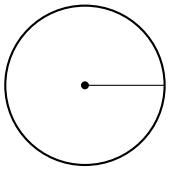
r cm

5. A student halves the diameter after squaring it. Repair the order. Use 3.14 for π.



$d = 12$ cm

6. Explain the square-radius step before multiplying by 3.14. Use 3.14 for π.



$r = 2$ cm

Answer Key

1. Approximately 78.5 cm^2.
2. 4 cm.
3. Approximately 28.26 cm^2.
4. 8 cm.
5. Approximately 113.04 cm^2.
6. Approximately 12.56 cm^2.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Radius is half the diameter: $r = 10/2 = 5$ cm.
2. $A \approx 3.14 \times 5^2 = 3.14 \times 25 = \frac{157}{2}$ cm^2.

Problem 2

1. $r^2 = \frac{1256}{25}/3.14 = 16$.
2. The nonnegative radius is 4 cm because $4 \times 4 = 16$.

Problem 3

1. Square the radius: $3^2 = 9$ cm^2.
2. $A \approx 3.14 \times 9 = \frac{1413}{50}$ cm^2.

Problem 4

1. $r^2 = \frac{5024}{25}/3.14 = 64$.
2. The nonnegative radius is 8 cm because $8 \times 8 = 64$.

Problem 5

1. Radius is half the diameter: $r = 12/2 = 6$ cm.
2. $A \approx 3.14 \times 6^2 = 3.14 \times 36 = \frac{2826}{25}$ cm^2.

Problem 6

1. Square the radius: $2^2 = 4$ cm^2.
2. $A \approx 3.14 \times 4 = \frac{314}{25}$ cm^2.

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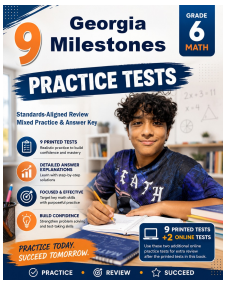

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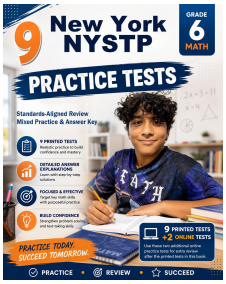

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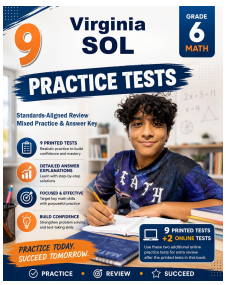

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