

Grade 7 - Circumference and Area of Circles - Test Answer Key

Common Core 7.G.B.4 · maths-pdf.fr/en/

Use this answer key and scoring guide to grade the circles test. Each solution shows the full work, and the scoring note explains how the points are awarded. Give partial credit for correct steps even when the final answer is wrong.

Grade 7 · Common Core State Standards: **7.G.B.4**

Question 1 - Circumference [2 pts]

$$C = \pi d = \frac{22}{7} \times 14 = 44$$

44 inches

Scoring: 1 point for the formula; 1 point for the answer.

Question 2 - Area [2 pts]

$$A = 3.14 \times 9^2 = 3.14 \times 81 = 254.34$$

254.34 square centimeters

Step	Value
r squared	81
Area	254.34

Steps.

Scoring: 1 point for squaring the radius; 1 point for the answer.

Question 3 - Find the radius [2 pts]

$$r = 62.8 \div 6.28 = 10 \text{ ft.}$$

$$A = 3.14 \times 100 = 314$$

radius 10 ft; area 314 square feet

Scoring: 1 point for the radius; 1 point for the area.

Question 4 - Leave it in pi [2 pts]

$$C = 2\pi(12) = 24\pi.$$

$$A = \pi(12)^2 = 144\pi$$

24π m; 144π square meters

Scoring: 1 point for each.

Question 5 - Semicircle [2 pts]

$$\text{Perimeter: } \frac{1}{2}(3.14)(20) + 20 = 31.4 + 20 = 51.4 \text{ cm.}$$

$$\text{Area: } \frac{1}{2}(3.14)(10^2) = 157$$

51.4 cm; 157 square centimeters

Scoring: 1 point for the perimeter; 1 point for the area.

Question 6 - Wheel distance [2 pts]

$$\text{One turn: } 2 \times 3.14 \times 15 = 94.2 \text{ in.}$$

$$5 \times 94.2 = 471$$

471 inches

Scoring: 1 point for the circumference; 1 point for 5 turns.

Question 7 - Leftover metal [2 pts]

$$\text{Square: } 20 \times 20 = 400. \text{ Circle: } 3.14 \times 100 = 314.$$

$$400 - 314 = 86$$

86 square inches

Scoring: 1 point for the two areas; 1 point for the difference.

Question 8 - Track [3 pts]

- a. Straight sides: 80 m; the two semicircles make one circle: $3.14 \times 20 = 62.8$; total 142.8 m.
- b. Rectangle $40 \times 20 = 800$ plus circle $3.14 \times 10^2 = 314$: 1114 square meters.
- c. $5 \times 142.8 = 714$ m.

Part	Value
Perimeter	142.8 m
Area	1,114 sq m
5 laps	714 m

Results.

Scoring: 1 point for each part.

Question 9 - Rug with a hole [3 pts]

- a. $3.14 \times 100 = 314$ square units.
- b. $3.14 \times 36 = 113.04$ square units.
- c. $314 - 113.04 = 200.96$ square units.

Scoring: 1 point for each part.

Total

20 points