

Grade 7 - Circumference and Area of Circles - Answer Key

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

Use this answer key to check your work on the circles worksheet. Every solution shows the steps, and the final answer appears in bold. If your answer is different, compare each step and look for the first place where the work changes.

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

Exercise 1 - Circumference from diameter

$$C = \pi d = 3.14 \times 10 = 31.4$$

31.4 inches (exactly 10π in)

Exercise 2 - Circumference from radius

$$C = 2\pi r = 2 \times 3.14 \times 7 = 43.96$$

43.96 feet

Exercise 3 - Area from radius

$$A = \pi r^2 = 3.14 \times 25 = 78.5$$

78.5 square centimeters

Exercise 4 - Area from diameter

Radius: $12 \div 2 = 6$.

$$A = 3.14 \times 6^2 = 3.14 \times 36 = 113.04$$

113.04 square inches

Exercise 5 - Radius from circumference

$$r = C \div (2\pi) = 18.84 \div 6.28 = 3$$

radius 3 ft; diameter 6 ft

Exercise 6 - Radius from area

$$r^2 = 50.24 \div 3.14 = 16, \text{ so } r = 4.$$

4 meters

Exercise 7 - Pi as 22/7

$$C = 2 \times \frac{22}{7} \times 14 = 88.$$

$$A = \frac{22}{7} \times 14^2 = \frac{22}{7} \times 196 = 616$$

88 cm; 616 square centimeters

Exercise 8 - Semicircle perimeter

$$\text{Curved part: } \frac{1}{2} \times 3.14 \times 10 = 15.7.$$

$$\text{Add the diameter: } 15.7 + 10 = 25.7$$

25.7 inches

Exercise 9 - Quarter circle

$$\frac{1}{4} \times 3.14 \times 8^2 = \frac{1}{4} \times 200.96 = 50.24$$

50.24 square inches

Exercise 10 - In terms of pi

$$C = \pi d = 9\pi.$$

$$\text{Radius is } \frac{9}{2}, \text{ so } A = \pi \left(\frac{9}{2}\right)^2 = \frac{81}{4}\pi$$

9π m; $\frac{81}{4}\pi$ square meters

Exercise 11 - Bike wheel

One turn = circumference: $3.14 \times 26 = 81.64$ in.

Ten turns: $81.64 \times 10 = 816.4$

81.64 inches; 816.4 inches

Exercise 12 - Two pizzas

Small: $3.14 \times 6^2 = 113.04$.

Large: $3.14 \times 8^2 = 200.96$.

$200.96 - 113.04 = 87.92$

113.04 and 200.96 square inches; the large has 87.92 more

Pizza	Radius	Area
Small	6 in	113.04
Large	8 in	200.96

Pizza areas.

Exercise 13 - Composite figure

Rectangle: $10 \times 6 = 60$.

Semicircle radius 3: $\frac{1}{2} \times 3.14 \times 9 = 14.13$.

$60 + 14.13 = 74.13$

74.13 square feet

Part	Area
Rectangle	60
Semicircle	14.13
Total	74.13

Exercise 14 - Ring

Outer: $3.14 \times 64 = 200.96$. Inner: $3.14 \times 25 = 78.5$.

$$200.96 - 78.5 = 122.46$$

122.46 square millimeters (exactly 39π)

Exercise 15 - Garden fence

$$C = 2 \times 3.14 \times 6 = 37.68 \text{ ft.}$$

$$37.68 \times 3.50 = 131.88$$

37.68 feet; \$131.88

Exercise 16 - Round table

Radius: 2.5 ft.

$$3.14 \times 2.5^2 = 3.14 \times 6.25 = 19.625 \approx 19.63$$

19.63 square feet

Step	Value
Diameter	5 ft
Radius	2.5 ft
r squared	6.25
Area	19.63 sq ft

The area steps.

Exercise 17 - Running track

One lap: $3.14 \times 100 = 314$ yd.

$$3 \times 314 = 942$$

942 yards

Exercise 18 - Circle in a square

The circle has radius 5: $3.14 \times 25 = 78.5$.

Square: $10 \times 10 = 100$.

$$100 - 78.5 = 21.5$$

21.5 square inches

Exercise 19 - Pie crust

$$3.14 \times 4.5^2 = 3.14 \times 20.25 = 63.585 \approx 63.59$$

63.59 square inches

Exercise 20 - Clock hand

In one hour the tip goes once around a circle of radius 6 in.

$$C = 2 \times 3.14 \times 6 = 37.68$$

37.68 inches