

Circle Around Town

Use circle formulas to solve real-life problems.

GRADE 7 • 7.GSR.5.5

7.GSR.5.5 "Given the formula for the area and circumference of a circle, solve problems that exist in everyday life."

NAME _____

DATE _____

CIRCLE FORMULA TOOLBOX

Use $C = 2\pi r$ when you know the radius, or use $C = \pi d$ when you know the diameter. Use $A = \pi r^2$ to find the amount of space inside a circle. Leave answers in terms of π unless a problem tells you to use a decimal.

WORKED EXAMPLE

Find the exact area of a circle with a radius of 9 cm.

1. $A = \pi r^2$

2. $A = \pi(9)^2$

3. $A = 81\pi$

Answer: 81π square centimeters

PRACTICE 6 problems

- 1** Find the exact circumference of a circle with a radius of 2 inches.

ANSWER _____

- 2** Find the exact area of a circle with a radius of 3 meters.

ANSWER _____

- 3** Find the exact area of a circle with a diameter of 8 centimeters.

ANSWER _____

- 4** Find the exact circumference of a circle with a diameter of 10 feet.

ANSWER _____

- 5** Find the exact area of a circle with a radius of 7 yards.

ANSWER _____

- 6** Find the exact circumference of a circle with a diameter of 12 millimeters.

ANSWER _____

APPLY IT Show your work

- 1** A bike wheel has a diameter of 14 inches. How far does the bike travel when the wheel makes one complete turn? Give an exact answer.

WORK SPACE

ANSWER _____

- 2** A circular game controller sticker has a radius of 11 millimeters. What is the exact area of the sticker?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A circular mural has a circumference of 24π feet. Find its exact area. Explain how you found the radius first.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the exact circumference of a circle with a radius of 2 inches.	4pi inches
2	Find the exact area of a circle with a radius of 3 meters.	9pi square meters
3	Find the exact area of a circle with a diameter of 8 centimeters.	16pi square centimeters
4	Find the exact circumference of a circle with a diameter of 10 feet.	10pi feet
5	Find the exact area of a circle with a radius of 7 yards.	49pi square yards
6	Find the exact circumference of a circle with a diameter of 12 millimeters.	12pi millimeters

PART 2 • APPLY IT

- 14pi inches** One full turn covers the wheel's circumference. Use $C = \pi d$, so $C = \pi(14) = 14\pi$ inches.
- 121pi square millimeters** Use $A = \pi r^2$. $A = \pi(11)^2 = 121\pi$ square millimeters.

CHALLENGE

144pi square feet. Since $24\pi = 2\pi r$, the radius is 12 feet. Then $A = \pi(12)^2 = 144\pi$ square feet.

Accept equivalent exact forms, such as $\pi(49)$ for 49π . Require square units for area and linear units for circumference.