LESSON MAKER PRO

Circle Power Practice

Use radius and diameter to find circle measurements.

GRADE 7 · 7.G.B.4

CCSS.Math.Content.7.G.B.4 "Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle."

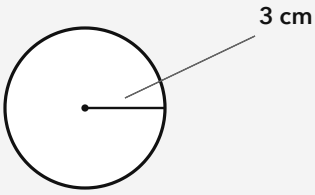
NAME _____ DATE _____

CIRCLE RULES

Circumference is the distance around a circle: C = 2pi r, or C = pi d. Area is the space inside a circle: A = pi r^2. If many narrow circle sectors are arranged in alternating directions, they make a shape close to a rectangle with base pi r and height r, so its area is pi r^2.

WORKED EXAMPLE

The figure shows a circle. Find its circumference and area.

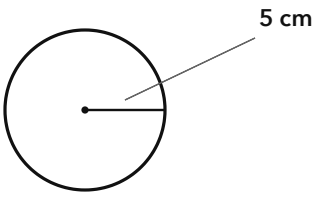


1. C = 2pi r
2. C = 2pi(3) = 6pi cm
3. A = pi r^2
4. A = pi$(3)^2$ = 9pi cm^2

Answer: Circumference = 6pi cm; area = 9pi cm^2

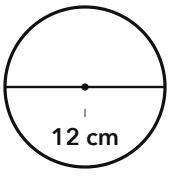
PRACTICE 6 problems

1 Find the circumference of the circle shown.



ANSWER _____

2 Find the area of the circle shown.



ANSWER _____

3 A circular badge has a radius of 4 in. Find its area.

ANSWER _____

4 A circle has an area of 49pi cm^2. Find its diameter.

ANSWER _____

5 A circle has a diameter of 16 m. Find its circumference and area.

ANSWER _____

_____

6 A circle has a circumference of 18pi ft. Find its area.

ANSWER _____

APPLY IT Show your work

1 A student is designing a round button for the school gaming club. The button has a radius of 6 cm. How much colored paper covers the front of the button?

WORK SPACE

ANSWER _____

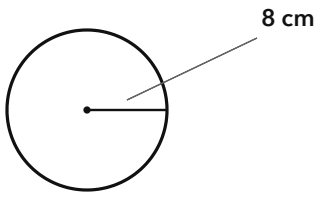
2 A student wraps an LED strip around the edge of a circular table for a school video project. The table has a diameter of 10 ft. What length of LED strip is needed?

WORK SPACE

ANSWER _____

CHALLENGE One step up

The circle shown is cut into many equal sectors and rearranged in alternating directions to make a shape close to a rectangle. Explain why the base is pi r and the height is r. Then find the area of this circle.



WORK SPACE AND ANSWER

ANSWER KEY

Circle Power Practice

GRADE 7 · 7.G.B.4

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the circumference of the circle shown.	**10pi cm**
2	Find the area of the circle shown.	**36pi cm^2**
3	A circular badge has a radius of 4 in. Find its area.	**16pi in^2**
4	A circle has an area of 49pi cm^2. Find its diameter.	**14 cm**
5	A circle has a diameter of 16 m. Find its circumference and area.	**Circumference = 16pi m; area = 64pi m^2**
6	A circle has a circumference of 18pi ft. Find its area.	**81pi ft^2**

PART 2 · APPLY IT

1. **36pi cm^2** Use A = pi r^2. Substitute 6 for r: A = pi(6)^2 = 36pi cm^2.
2. **10pi ft** Use C = pi d. Substitute 10 for d: C = pi(10) = 10pi ft.

CHALLENGE

The rearranged sectors make a shape close to a rectangle. The base is half the circumference, so it is pi r = 8pi cm, and the height is the radius, 8 cm. The area is 8pi x 8 = 64pi cm^2.

Accept equivalent exact forms, such as pi(6)^2 for 36pi. Students may use 2pi r or pi d for circumference when the correct radius or diameter is used.