LESSON MAKER PRO

Circle Sense

Find the distance around circles and the space inside them.

GRADE 7 · 7.GM.3

7.GM.3 "Use mathematical models and reasoning with proportions and ratios to determine measurements, justify formulas, and solve problems. Solve problems that require the conversion of weights and capacities within the same measurement systems..."

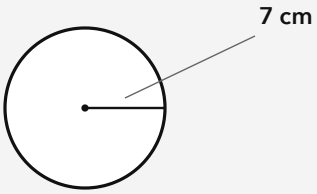
NAME _____ DATE _____

AROUND OR INSIDE?

The diameter is twice the radius. Circumference is the distance around a circle: $C = \pi d$ or $C = 2\pi r$. Area is the space inside a circle: $A = \pi r^2$. Use $\pi \approx 3.14$ when a decimal answer is requested.

WORKED EXAMPLE

Find the area of the circle in terms of π.

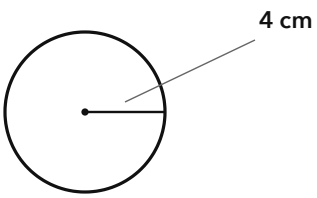


1. Use $A = \pi r^2$.
2. Substitute the radius: $A = \pi(7)^2$.
3. Square the radius: $A = 49\pi$ cm^2.

Answer: 49π cm^2

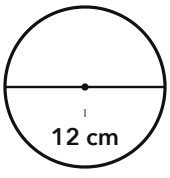
PRACTICE 6 problems

1 Find the area of the circle in terms of π.



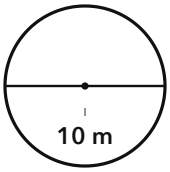
ANSWER _____

2 Find the circumference of the circle in terms of π.



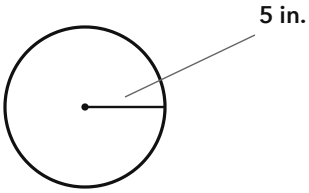
ANSWER _____

3 Find the area of the circle in terms of π.



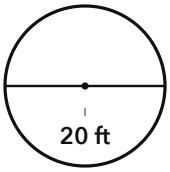
ANSWER _____

4 Find the approximate circumference of the circle using π ≈ 3.14.



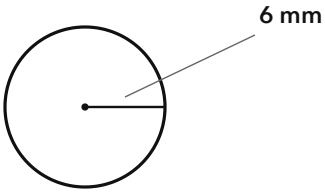
ANSWER _____

5 Find the approximate area of the circle using π ≈ 3.14.



ANSWER _____

6 Find both the circumference and area of the circle in terms of π.

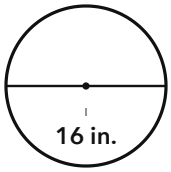


ANSWER _____

_____

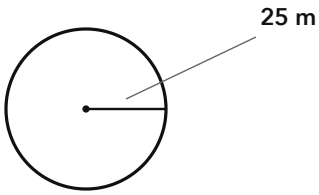
APPLY IT Show your work

1 A round pizza has the diameter shown. What is the area of its top in terms of π and as a decimal using π ≈ 3.14?



ANSWER _____

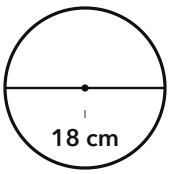
2 You ride your bike around a circular loop with the radius shown. How far do you ride in 4 laps? Give your answer in terms of π and using π ≈ 3.14.



ANSWER _____

CHALLENGE One step up

A strip of trim goes around the edge of a circular game mat with the diameter shown. Trim costs $0.50 per centimeter. Find the total cost using π ≈ 3.14. Explain why you used circumference or area.



WORK SPACE AND ANSWER

ANSWER KEY

Circle Sense

GRADE 7 · 7.GM.3

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the area of the circle in terms of π.	**16π cm^2**
2	Find the circumference of the circle in terms of π.	**12π cm**
3	Find the area of the circle in terms of π.	**25π m^2**
4	Find the approximate circumference of the circle using π ≈ 3.14.	**31.4 in.**
5	Find the approximate area of the circle using π ≈ 3.14.	**314 ft^2**
6	Find both the circumference and area of the circle in terms of π.	**Circumference: 12π mm; area: 36π mm^2**

PART 2 · APPLY IT

1. **64π in.^{2}; 200.96 in.^{2}** Half the diameter gives a radius of 8 inches. $A = \pi(8)^2 = 64\pi \approx 200.96$ square inches.
2. **200π m; 628 m** One lap is $2\pi(25) = 50\pi$ meters. Four laps are 200π meters, or about 628 meters.

CHALLENGE

$28.26. Use circumference because the trim goes around the edge: 18 × 3.14 = 56.52 cm, and 56.52 × $0.50 = $28.26.

Accept equivalent forms such as 12 × π mm. Check that circumference answers use length units and area answers use square units.