LESSON MAKER PRO

Circle Area Checks

Calculate, estimate, and test area claims.

GRADE 7 · 7.GR.B.4.c

7.GR.B.4.c "Interpret and justify solutions in context by comparing different geometric representations, estimating or checking for reasonableness, and explaining how the result applies to the context."

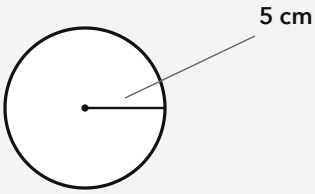
NAME _____ DATE _____

CHECK THE AREA

A circle's area is π × radius × radius. Use 3.14 for π to calculate, then use 3 for π to check whether your answer is reasonable.

WORKED EXAMPLE

Find the circle's area using π = 3.14. Check it using π = 3.



1. Estimate: 3 × 5 × 5 = 75 cm^2.
2. Calculate: 3.14 × 5 × 5 = 78.5 cm^2.
3. 78.5 is close to 75, so the answer is reasonable.

Answer: 78.5 cm^2

PRACTICE 4 problems

1 A circle has radius 2 cm. Find its area using π = 3.14. Is 12 cm^2 a reasonable estimate?

ANSWER _____

2 A circle has diameter 8 m. Which area is correct: 50.24 m^2 or 200.96 m^2? Explain.

ANSWER _____

3 A circle has radius 6 in. Sam says its area is 37.68 in^2. Check Sam's answer.

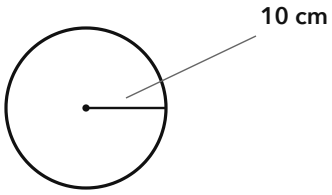
ANSWER _____

4 Two circles have radii 1 ft and 7 ft. How many times as large is the larger area? Explain.

ANSWER _____

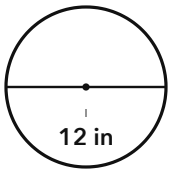
APPLY IT Show your work

1 A round game mat has the radius shown. Its listing says the area is 31.4 cm^2. Check the listing using π = 3.14.



ANSWER _____

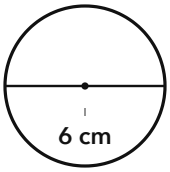
2 A pizza has the diameter shown. Another pizza has an area of 100 in^2. Which has more area, and by how much? Use π = 3.14.



ANSWER _____

CHALLENGE One step up

A sticker maker doubles the diameter of the sticker shown. They claim its area doubles. Find both areas using π = 3.14, then explain whether the claim is correct.



WORK SPACE AND ANSWER

ANSWER KEY

Circle Area Checks

GRADE 7 · 7.GR.B.4.c

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A circle has radius 2 cm. Find its area using π = 3.14. Is 12 cm^2 a reasonable estimate?	**12.56 cm^2. Yes, using π = 3 gives 12 cm^2.**
2	A circle has diameter 8 m. Which area is correct: 50.24 m^2 or 200.96 m^2? Explain.	**50.24 m^2. The radius is 4 m, and 3.14 × 4 × 4 = 50.24.**
3	A circle has radius 6 in. Sam says its area is 37.68 in^2. Check Sam's answer.	**Sam is incorrect. The area is 3.14 × 6 × 6 = 113.04 in^2.**
4	Two circles have radii 1 ft and 7 ft. How many times as large is the larger area? Explain.	**49 times as large. The radius is 7 times as large, so the area is 7 × 7 = 49 times as large.**

PART 2 · APPLY IT

1. **The listing is incorrect. The area is 314 cm^2.** Calculate 3.14 × 10 × 10 = 314 cm^2. An estimate using π = 3 is 300 cm^2, not 31.4 cm^2.
2. **The pizza shown has 13.04 in^2 more area.** Its radius is 6 in, so its area is 3.14 × 6 × 6 = 113.04 in^2. Subtract 100 to get 13.04 in^2.

CHALLENGE

The original area is 28.26 cm^2. The new diameter is 12 cm, so the new area is 113.04 cm^2. The claim is incorrect because the area is four times as large.

Accept equivalent calculations and estimates that support the conclusion. Area answers need square units.