WHICH IS IT: AREA OR PERIMETER? TEACHER NOTES (PG. 1 OF 2)

Perimeter & Area

SE 4.5D, 4.1A, 4.1B, 4.1C, 4.1E, 4.1F, 4.1G

Purpose This activity is challenging. First students have to choose area or perimeter and use the dimensions in the problem to find one or both of them. Then they have to solve problems that *use* area or perimeter, but where the area or perimeter might not be the answer.

About the Problems: Problem #7 is a Challenge!! Students have to multiply multiples of ten (ex. 230 × 230). To keep this within the 4th grade student expectations, students should use the distributive property to multiply 23 × 23, and then multiply by 100. Multiplication by any multiple of 10 is essentially more a matter of place value than of multiplication. You may need to walk your students through that concept.

- ☐ Teacher-facilitated w/ Small Student Groups
- ☑ Tutoring/Intervention
- ☑ Journal
- ☑ Small Group
- ☑ Centers
- ☐ Anchor chart

Setting Up For Instruction

- ☐ Make 1 copy of **Which Is It: Area or Perimeter? Role Cards** (PG. 98) for each station. Cut apart.
- ☐ Make 1 copy of **Which Is It: Area or Perimeter? Directions** (PG. 99) for each station.
- ☐ Make 1 copy of **Which Is It: Area or Perimeter?** (PG. 107–113) for each student.
- ☐ Other materials:
  - ☐ **White boards** and **markers**
  - ☐ **Sticky notes**
  - ☐ **4th Grade STAAR Reference Materials**

How-To Guide

1. Place all materials in the station.
2. Place students in groups and assign each group a center location.
3. Students will read a problem and write on their whiteboards if the problem is area or perimeter. Say, "1, 2, 3, Show!" and then discuss their choices and come to an agreement. Then students check the box on **Which Is It: Area or Perimeter?** so they will remember their choice. Students do the same thing for each problem.
4. Next, students follow the same process, but write the formula for each problem. When they agree on the formula, they write it on their sheet. They follow the same process for the rest of the problems.
5. Once students have agreed on area or perimeter and have written the formulas, they work together to solve the problems.
6. When the group has finished the problems, they should answer the journal question on the sticky note and place the sticky note on the back of the directions.

Thought Extenders

- What kind of figure should you draw?
- What measures do you know?
- What are the units?
- What does the problem ask you to find?
- How do you find perimeter?
- How do you find area?
- What does perimeter mean?
- What does area mean?
- Does the problem ask you to find perimeter or area? How do you know?
- Did you find the measure that the problem asks you to find?
- What is the unit in the solution?

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Guiding Students Through Problems That Involve Both Perimeter and Area (4.1B)

Most of the problems in this activity involve both perimeter and area. When perimeter and area are mixed, students often get confused, which is exactly why they need to do problems that mix perimeter and area. The goal isn't to confuse them; it's to make students pay attention to the problems they are solving. Here are some suggestions to help students solve problems that mix perimeter and area.

1. Ensure that students draw a picture that contains all of the information from the problem. Even if a piece of information doesn't exactly belong in the picture, students should write the information near the diagram. This keeps all of the information together.
2. Have students read the question and determine what they need to find out: Are they finding perimeter or area?
3. Then students should decide what kind of information they need to solve the problem. For example, do they need to know the lengths of the sides?
4. Once they know what information they need, they must decide if they already have everything they need. If not, they need to decide what they need to find out and do the calculations to find it out.
5. Finally, they solve the problem.

Reader

Announcer

WHICH IS IT: AREA OR PERIMETER? DIRECTIONS

Materials:

- Which Is It: Area or Perimeter?
- Whiteboards and markers
- ticky notes
- 4th Grade STAAR Reference Materials (upside down on the table)

Directions:

Is it area or perimeter?

1. Figure out whose birthday is the closest to today. Give them the Reader card. Give the person next to them the Announcer card.
2. The Reader reads Problem #1 out loud while everyone else reads it silently.
3. Everyone chooses Area or Perimeter and writes the word on their whiteboard.
4. The Announcer says, "1, 2, 3, Show!" Everyone shows their board and discusses why the problem is an area problem or a perimeter problem. Once you agree, check the Area or Perimeter box on the problem.
5. Pass the cards to the left and follow the same process for each problem.
6. Set the Reader card aside.

Which formula?

1. Go back to Problem #1.
2. Is it area or perimeter? Write the correct formula (no numbers) on the whiteboard. You can use the STAAR Reference Materials if you need it. But try to remember the formulas without it first.
3. The Announcer says, "1, 2, 3, Show!" Everyone shows their boards and discusses how they put the numbers into the formula. Once everyone agrees, write the formula on the problem.
4. Pass the Announcer card to the left and follow the same process for each problem.

Fill It and Solve It

1. Now it's time to fill in the numbers in the formulas and solve each problem. Be careful! These problems use both area and perimeter. But the area or perimeter isn't always the answer to the problem! Be sure to write units on your answers.

Journal

Answer this question on a sticky note and place the sticky note on the back of these directions.

What words in a problem tell you whether you need to find the perimeter or the area?

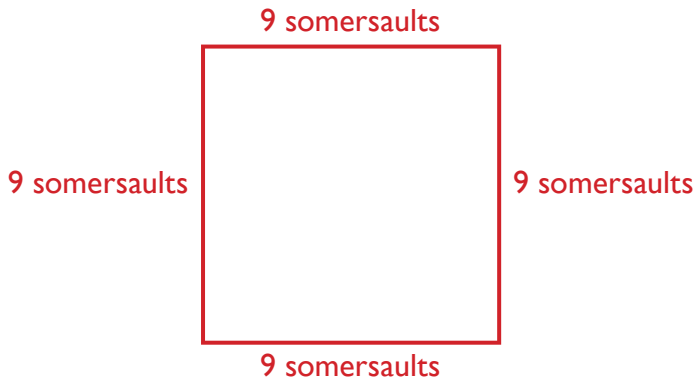
WHICH IS IT: AREA OR PERIMETER? ANSWER KEY (PG. 1 OF 7)

Follow the center directions.

1 A gymnast does somersaults around the edge of a square mat. She does 9 somersaults per side. She travels 3 feet per somersault. How far does she travel?

☑ Perimeter ☐ Area

Diagram



Solution

Formula: P = 4*s*

Fill it in: P = 4 × 27

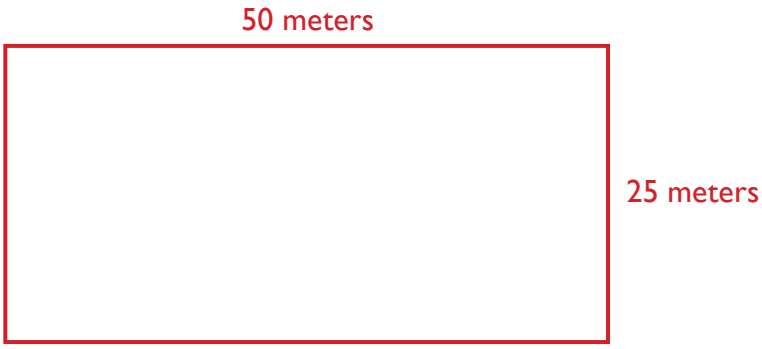
Solve it!

Solution: 108 feet

2 An Olympic size pool has a length of 50 meters (m) to accommodate long-course races. Its width is 25 meters. What is the area of the surface of the pool? If each lane is 5 meters wide, how many lanes can be put in the pool?

☐ Perimeter ☑ Area

Diagram



Solution

Formula: A = *l* × *w*

Fill it in: 130 = 50 × 25

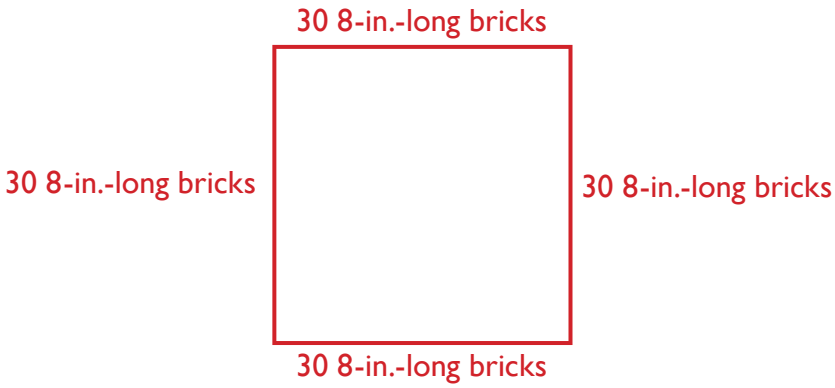
Solve it!

Solution: 1,250 sq. m; 5 lanes

3 A brick garden is lined with bricks that are each 8 inches long. There are 30 bricks on each side. What is the perimeter of the garden?

☑ Perimeter ☐ Area

Diagram



Solution

Formula: P = 4s

Fill it in: P = 4 × 240

Solve it!

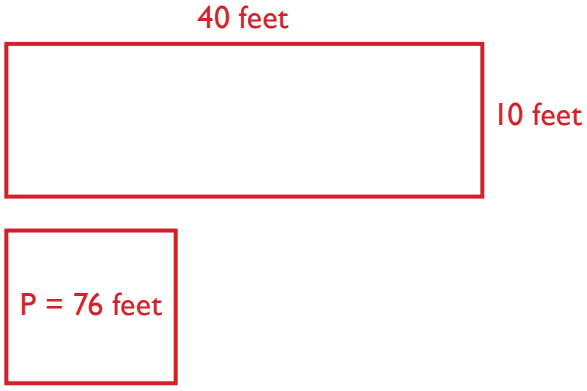
Solution: 960 inches

WHICH IS IT: AREA OR PERIMETER? ANSWER KEY (PG. 4 OF 7)

4 Joanna lives in an apartment that is shaped like a rectangle. Her apartment is 40 feet long and 10 feet wide. Joanna's friend Lonnie also lives in an apartment. His apartment is a square with a perimeter of 76 feet. Which apartment is larger and why?

☑ Perimeter ☑ Area

Diagram



Solution

Formula: A = *l* × *w*

Fill it in: 400 = 40 × 10

361 = 19 × 19

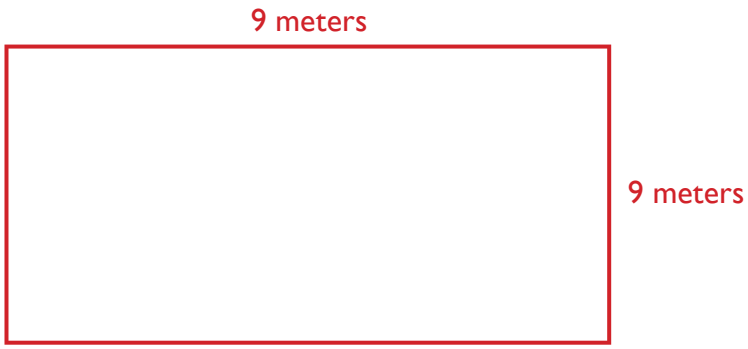
Solve it!

Solution: Joanna's apartment. She has 400 sq. feet. Lonnie has 361 sq. ft.

5 Lonnie made an area rug. The length of the rug is 3 meters and the width is 9 meters. He tells Carl that the border of the rug is 24 meters. Carl says that the border is 27 meters. Who is correct and why?

☑ Perimeter ☐ Area

Diagram



Solution

Formula: P = *l* + *w* + *l* + *w*

Fill it in: P = 3 + 9 + 3 + 9

Solve it!

Solution: 24 meters

Circle the correct answer.

A. Carl is correct because 27 is larger than 24.

B. Carl is incorrect because Lonnie didn't find the length of the border correctly.

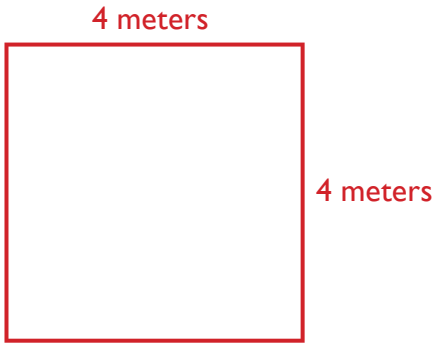
(C.) Lonnie is correct because the perimeter is the same as the length of the border.

D. Lonnie is incorrect because he found the perimeter, not the area.

6 Lonnie makes a new area rug. This rug is 4 meters long and 4 meters wide. He tells Carl that the new rug has a perimeter of 16 meters. Carl said, "Lonnie, my silly friend. It's the area that is 16 meters." Who is right and why?

☑ Perimeter ☑ Area

Diagram



Solution

Formula: $P = l + w + l + w$ and $A = l \times w$

Fill it in: $P = 4 + 4 + 4 + 4$ and $A = 4 \times 4$

Solve it!

Solution: Perimeter is 16 meters; area is 16 square meters

Circle the correct answer.

A. Carl is correct because area is measured in square meters.

B. Carl is incorrect because perimeter is measured in square meters.

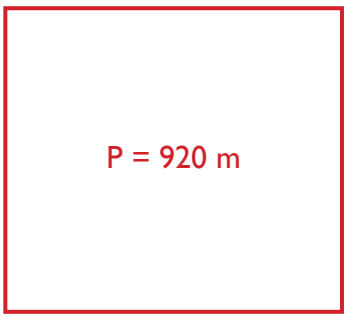
(C.) Lonnie is correct because perimeter is measured in meters.

D. Lonnie is incorrect because area is measured in meters.

7 ★ The Great Pyramid of Giza sits on a square base. Its perimeter is 920 meters. What is the area of its base?

☑ Perimeter ☐ Area

Diagram



Solution

Formula: A = *l* × *w*

Fill it in: A = 230 × 230

Solve it!

Solution: 52,900 square meters

WHICH IS IT: AREA OR PERIMETER? (PG. 1 OF 7)

Name: _____

Follow the center directions.

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Diagram

Solution
Formula: _____ **Fill it in:** _____ **Solve it!** **Solution:** _____

 Name: _____

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☐ Perimeter ☐ Area

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Formula: _____ **Fill it in:** _____ **Solve it!** **Solution:** _____

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☐ Perimeter ☐ Area

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Formula: _____ **Fill it in:** _____ **Solve it!** **Solution:** _____

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☐ Perimeter ☐ Area

Diagram

Solution

Formula: _____

Fill it in: _____

_____

Solve it!

Solution: _____

 Name: _____

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Formula: _____ **Fill it in:** _____ **Solve it!** **Solution:** _____

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☐ Perimeter ☐ Area

Diagram

Solution

Formula: _____

Fill it in: _____

Solve it!

Solution: _____

Circle the correct answer.

A. Carl is correct because area is measured in square meters.

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WHICH IS IT: AREA OR PERIMETER? (PG. 7 OF 7)

Name: _____

7 ★ The Great Pyramid of Giza sits on a square base. Its perimeter is 920 meters. What is the area of its base?

☐ Perimeter ☐ Area

Diagram

Solution
Formula: _____ **Fill it in:** _____ **Solve it!** **Solution:** _____