

Oklahoma Content Standard 5.4.1.b: Develop and use the formula for perimeter and area of a square and rectangle to solve application problems.

Oklahoma Process Standard, Reasoning 5.PS3.3: Make predictions and draw conclusions about mathematical ideas and concepts. Predictions become conjectures and conclusions become more logical as students mature mathematically.



Before beginning a discussion on area of rectangles in Part 1, Teaching the Lesson, review with students that perimeter is the distance around a plane figure. Have them complete Oklahoma Master 8 for practice in finding perimeters and developing perimeter formulas. You might want to help them to generalize the formulas in Problems 3, 6, 9, and 12. Be sure that students recognize the equilateral triangle, the square, the regular polygon (hexagon), and the rectangle. Then assign Oklahoma Master 9 for practice in using perimeter formulas. You might need to remind students of the significance of tick marks on the sides of the figures.

Student Page

Name _____ Date _____ Time _____

LESSON 9•4 Perimeter Formulas

Perimeter is the distance around a plane figure.
Find the perimeter of each figure below.
The last answer in each row is a formula for perimeter.

1. <u>12 in.</u>	2. <u>18 cm</u>	3. <u>s + s + s, or 3s</u>
4. <u>20 m</u>	5. <u>14 in.</u>	6. <u>s + s + s + s, or 4s</u>
7. <u>42 in.</u>	8. <u>20 cm</u>	9. <u>s + s + s + s + s + s, or 6s</u>
10. <u>20 in.</u>	11. <u>24 m</u>	12. <u>b + h + b + h, or 2b + 2h</u>

Oklahoma Master, p. OK8

Student Page

Name _____ Date _____ Time _____

LESSON 9•4 Finding Perimeters

Find the perimeter of each figure below. Use one of the formulas from Oklahoma Master 8 if you can.

1. isosceles triangle <u>18 m</u>	2. equilateral triangle <u>36 cm</u>	3. square <u>26 m</u>
4. pentagon <u>16 ft</u>	5. octagon <u>72 in.</u>	6. square <u>80 cm</u>
7. parallelogram <u>28 in.</u>	8. rectangle <u>12 cm</u>	9. rectangle <u>40 m</u>

10. Danny wants to install a low fence around his rose garden. It will be a rectangle 30 feet long and 12 feet wide. How many feet of fencing will Danny need?
84 feet

Oklahoma Master, p. OK9

LESSON
9•4

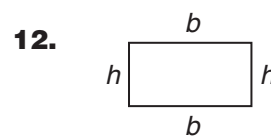
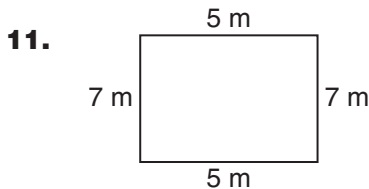
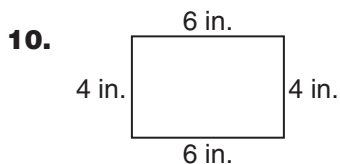
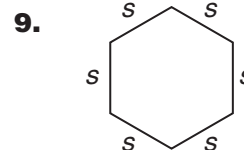
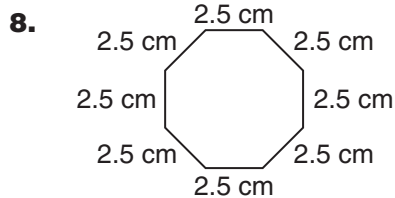
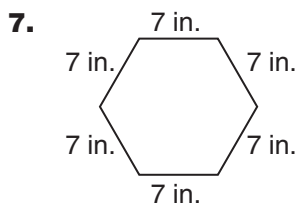
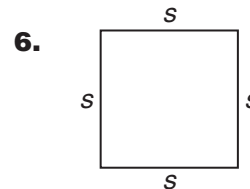
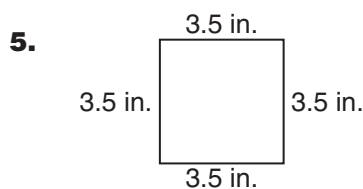
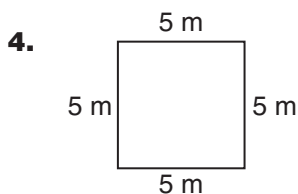
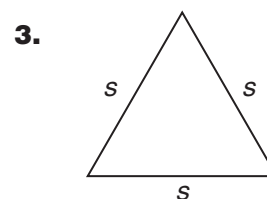
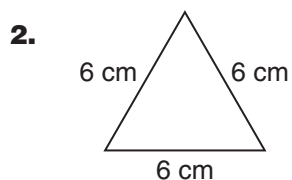
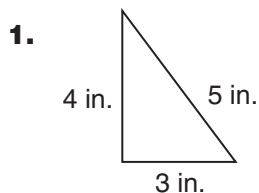
Perimeter Formulas


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Perimeter is the distance around a plane figure.

Find the perimeter of each figure below.

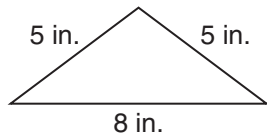
The last answer in each row is a formula for perimeter.



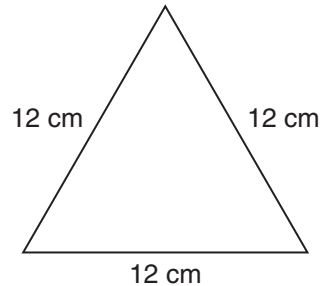
LESSON
9•4**Finding Perimeters**

Find the perimeter of each figure below. Use one of the formulas from Oklahoma Master 8 if you can.

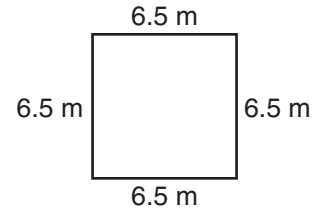
- 1.**
- isosceles triangle



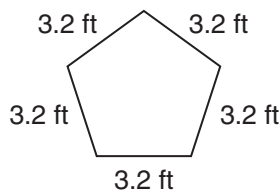
- 2.**
- equilateral triangle



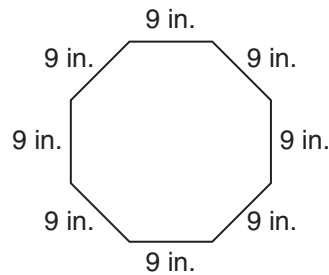
- 3.**
- square



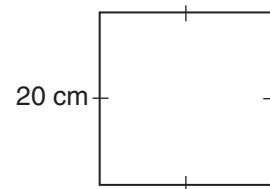
- 4.**
- pentagon



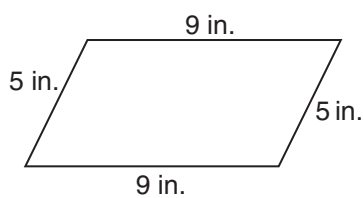
- 5.**
- octagon



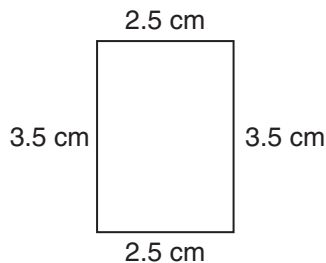
- 6.**
- square



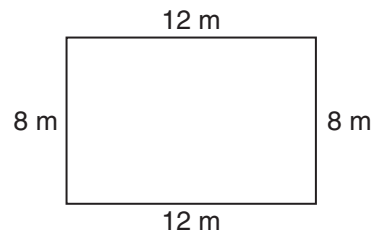
- 7.**
- parallelogram



- 8.**
- rectangle



- 9.**
- rectangle



- 10.** Danny wants to install a low fence around his rose garden. It will be a rectangle 30 feet long and 12 feet wide. How many feet of fencing will Danny need?

continued



In **Finding the Area of a Rectangle** on page 724, students use a grid to find the area of a rectangle. Then in **Discussing Formulas for the Area of a Rectangle** on page 725, students move from counting squares in a rectangle to derive the formula for the area of a rectangle $A = b \cdot h$, where b is the base of the rectangle and h is the height. Give students a variety of rectangle area problems before assigning Oklahoma Master 10, which deals with the area of squares.

Teacher Page

Math Journal 2, p. 304

▶ Finding the Area of a Rectangle

(Math Journal 2, p. 304) PARTNER ACTIVITY

Ask volunteers to define the terms **base** and **height**. The term *base* is often used to mean both a side of a figure and the length of that side. The *height* of a rectangle is the length of a side adjacent to the base.

Ask students to decide upon the phrasing of a common definition for these vocabulary terms. Record the student definitions on the Class Data Pad.

Ask a volunteer to draw a rectangle on the board and label the base and height.

In *Fourth Grade Everyday Mathematics*, students found the area of a rectangle by counting unit squares. Then they developed a formula for finding the area of a rectangle. Expect that students might use either method—formula or counting squares—to find the areas of the rectangles on journal page 304.

With the counting method, some rectangles enclose partial grid squares, and students must count and add the full and partial squares to find areas. For example, rectangle C encloses 4 full squares (4 cm^2), 4 half-squares ($4 \times \frac{1}{2} = 2 \text{ cm}^2$), and 1 quarter-square ($\frac{1}{4} \text{ cm}^2$). Its total area is $4 + 2 + \frac{1}{4} = 6\frac{1}{4} \text{ cm}^2$.

4 full squares	4 cm^2	Each half-square has an area of $\frac{1}{2} \text{ cm}^2$.
4 half-squares	2 cm^2	
+ 1 quarter-square	$\frac{1}{4} \text{ cm}^2$	
total area	$6\frac{1}{4} \text{ cm}^2$	

Assign journal page 304, Problem 1. Circulate and assist.

Oklahoma Teacher's Lesson Guide 2, p. 724

Student Page

Name _____
Date _____
Time _____

LESSON
9•4

Area of Squares

OKLAHOMA

Use what you know about the area of a rectangle to find the area of each square below. The last answer is a formula for the area of a square.

1.
 9 cm^2

2.
 36 in^2

3.
 $s \cdot s$, or s^2
- Find the area of each square.

4.
 121 ft^2

5.
 81 in^2

6.
 6.25 cm^2
- Find the area of the square with the given side length.

7. 8 miles
 64 mi^2

8. 12 meters
 144 m^2

9. $\frac{1}{2}$ inch
 $\frac{1}{4} \text{ in}^2$
10. Marie's family room is a square 15 feet on each side. How many square feet of wooden flooring will she need to replace the worn carpeting?
 225 ft^2
11. The top of a square card table measures 36 inches on each side. What is the area of the top of the table?
 $1,296 \text{ in}^2$

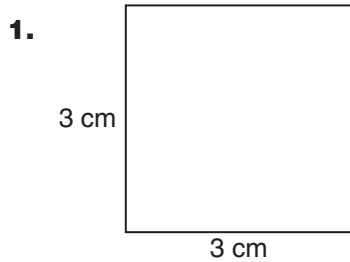
Oklahoma Master, p. OK10

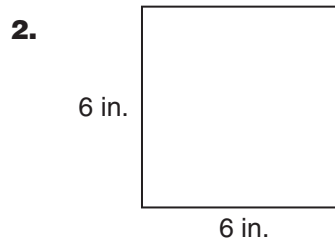
LESSON
9•4

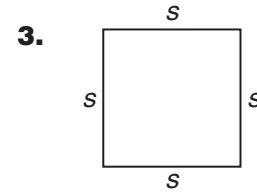
Area of Squares



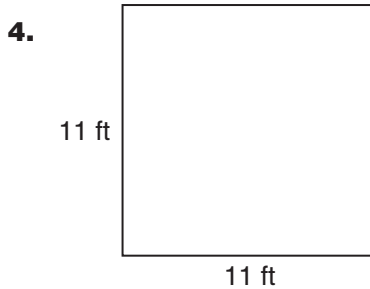
Use what you know about the area of a rectangle to find the area of each square below. The last answer is a formula for the area of a square.

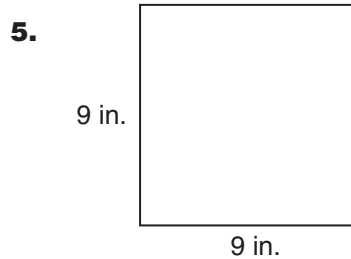


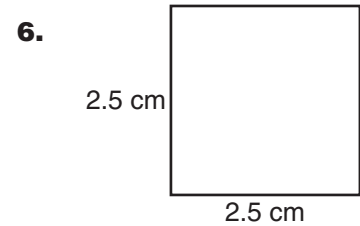




Find the area of each square.







Find the area of the square with the given side length.

7. 8 miles

8. 12 meters

9. $\frac{1}{2}$ inch

10. Marie's family room is a square 15 feet on each side. How many square feet of wooden flooring will she need to replace the worn carpeting?

11. The top of a square card table measures 36 inches on each side. What is the area of the top of the table?
