

Lesson 10: Distance, Perimeter, and Area in the Real World

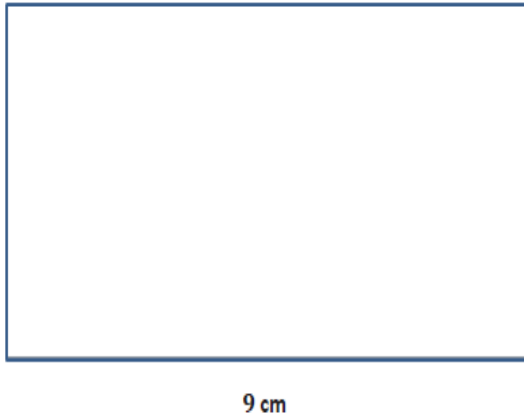
Area = Covering

Perimeter = Around

Classwork

Opening Exercise

- a. Find the area and perimeter of this rectangle:



5 cm

9 cm

$$A = l w$$

$$A = 5 \cdot 9$$

$$A = 45 \text{ cm}^2$$

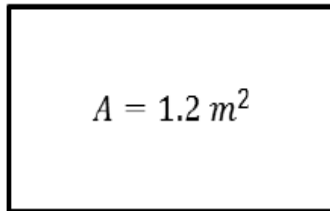
P = add all sides

$$P = 18 + 10$$

$$P = 28 \text{ cm}$$

Apr 10-5:47 AM

- b. Find the width of this rectangle. The area is 1.2 m^2 , and the length is 1.5 m.



$$A = 1.2 \text{ m}^2$$

$w = ?$

$$l = 1.5 \text{ m}$$

$$A = l w$$

$$1.2 = 1.5 w$$

$$1.2 \div 1.5 = w \cdot \cancel{1.5} \div \cancel{1.5}$$

$$0.8 \text{ m} = w$$

Exploratory Challenge

Example 1: Student Desks or Tables

1. Measure the dimensions of your desktop.
2. How do you find the area of the desktop?
3. How do you find the perimeter?
4. Record these on your paper in the appropriate column below.

Apr 10-5:51 AM

Exercise 1

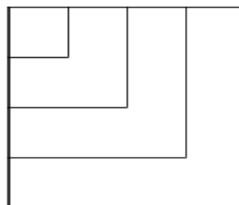
Estimate and predict the area and perimeter of each object. Then measure each object and calculate both the area and perimeter of each.

Object or Item to be Measured	Measurement Units	Precision (Measure to the Nearest)	Area Prediction (Square Units)	Area (Square Units) Write the Expression and Evaluate It	Perimeter Prediction (Linear Units)	Perimeter (Linear Units)
Ex: door	feet	half foot		$6\frac{1}{2}ft \times 3\frac{1}{2}ft = 22\frac{3}{4}ft^2$		$2\left(3\frac{1}{2}ft + 6\frac{1}{2}ft\right) = 20ft$
desktop	inch	inch				
Got It Board						
Fire Extinguisher						
Clown Closet						
Side Table						
Bench By Team Room						

Apr 10-5:52 AM

Problem Set

- How is the length of the side of a square related to its area and perimeter? The diagram below shows the first four squares stacked on each other.



Look For Patterns

- Complete this chart, calculating area and perimeter for each square.

Side Length in Feet	Expression Showing the Area	Area in Square Feet	Expression Showing the Perimeter	Perimeter in Feet
1	1×1	1	1×4	4
2				
3				
4				
5				
6				
7				
8				
9				
10				
n				

- In a square, which numerical value is greater, the area or the perimeter?
- When is a square's area (in square units) equal to its perimeter (in units)?
- Why is this true?

Apr 10-5:53 AM

2. This scale drawing is a school pool. The walkway around the pool needs special non-skid strips installed, but only at the edge of the pool and the outer edges of the walkway.



- Find the length of non-skid strips that are needed for the job.
- The non-skid strips are sold only in rolls of 50 m. How many rolls need to be purchased for the job?

3. A homeowner called in a painter to paint the walls and ceiling of one bedroom. His bedroom is 18 ft. long, 12 ft. wide, and 8 ft. high. The room has two doors, each 3 ft. by 7 ft. and three windows each 3 ft. by 5 ft. The doors and windows do not have to be painted. A gallon of paint can cover 300 ft^2 . A hired painter claims he will need 4 gallons. Show that his estimate is too high.

Show on a separate sheet.

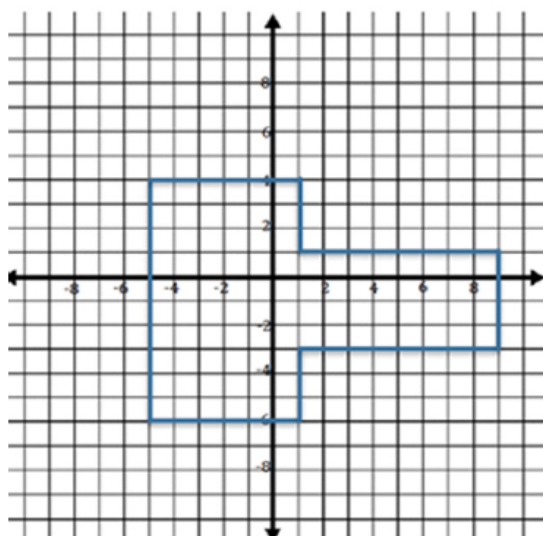
4. Theresa won a gardening contest and was awarded a roll of deer-proof fencing. The fence is 36 yards long. She and her husband, John, discuss how to best use the fencing to make a rectangular garden. They agree that they should only use whole numbers of feet for the length and width of the garden.
- What are the possible dimensions of the garden?
 - Which plan yields the maximum area for the garden? Which plan would yield the minimum area?

Make Tables

Apr 10-5:55 AM

Exit Ticket

1. The local school is building a new playground. This plan shows the part of the playground that needs to be framed with wood for the swing set. The unit of measure is feet. Determine the number of feet of wood that will be needed to frame the area.



2. The school will fill the area with wood mulch for safety. Determine the number of square feet that need to be covered by the mulch.

Apr 10-5:56 AM

Perimeter			Area		
L	W	= P	L	W	= A

Apr 10-9:58 AM