

Lesson: Area and Perimeter

Sixth Grade Objective: 2.01 Estimate and measure length, perimeter, area, angles, weight, and mass of two- and three-dimensional figures, using appropriate tools.

Lesson:

Vocabulary

- Perimeter = the distance around a figure.
- Area = the measure of the region that is inside a closed plane figure.

Formulas

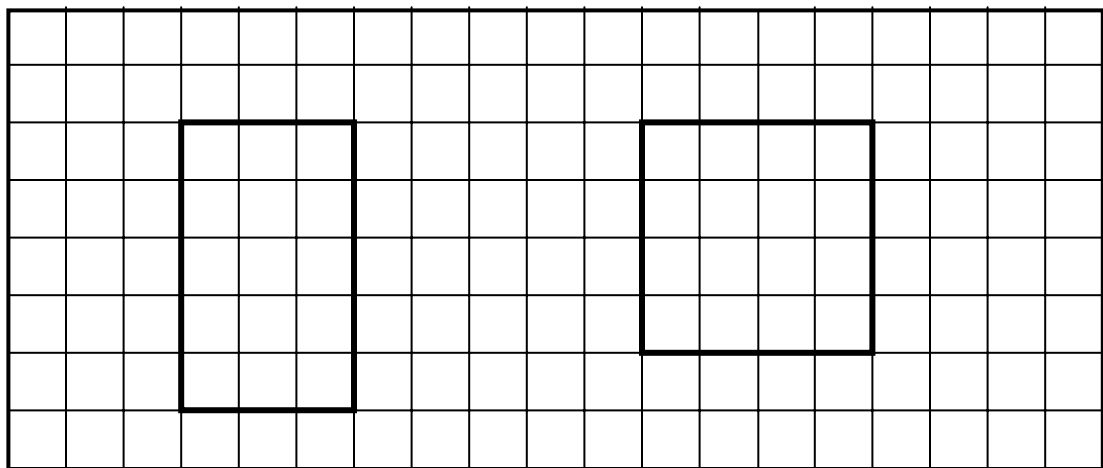
rectangles, square, parallelograms

- Perimeter= side + side + side + side or $P= 2$ (height + width)
- Area= base x height

triangles

- Area= $\frac{1}{2}$ base x height
- Perimeter= side + side + side

Using a grid makes it easy to determine the area and perimeter of these shapes. The square units can be counted to determine the area inside both the square and rectangle.



Rectangle:

Dimensions: 3 units by 5 units

Perimeter= $3 + 3 + 5 + 5$

$P= 16$ units

Area= 3×5

$A= 15$ square units

Square:

Dimensions: 4 units per side

Perimeter= $4 + 4 + 4 + 4$ or 4×4

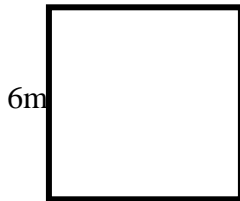
$P= 16$ units

Area= 4×4

Area= 16 square units

Here is another example without the grid:

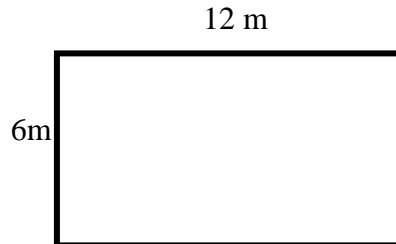
Square



Area= length x width
 Area= 6 x 6
 A= 36 meters

Perimeter= s + s + s + s
 Perimeter= 6 + 6 + 6 + 6
 or 6 x 4
 P= 24 meters

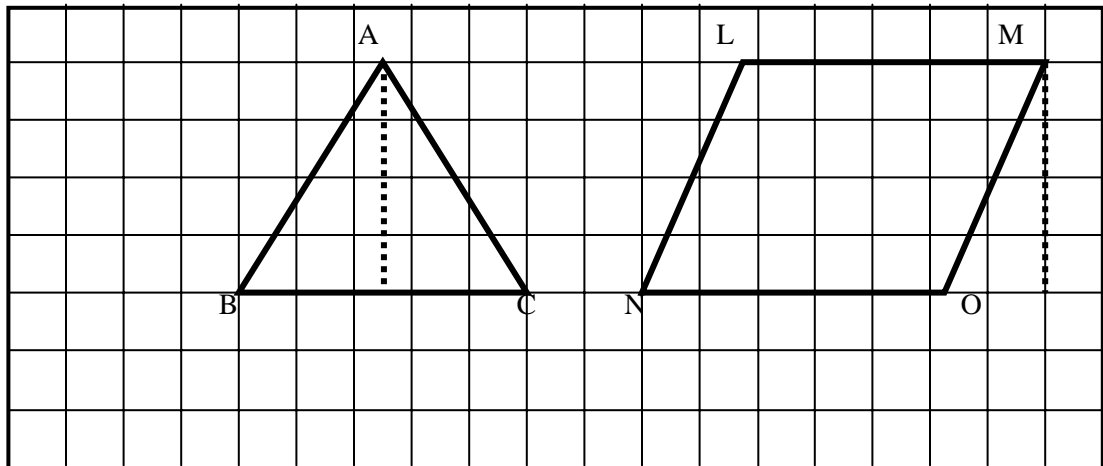
Rectangle



Area= length x width
 A= 6 x 12
 A= 72 meters

Perimeter= s + s + s + s
 P= 6 + 12 + 6 + 12
 or 2(6 + 12)
 P= 36 meters

Unfortunately, not all shapes can easily be put onto a grid and counted. Triangles and Parallelograms do not have the 90 degree angles that fit.



Triangle

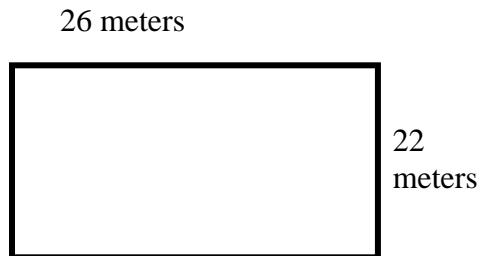
Area= 1/2 base x height
 b=5 units
 h=4 units
 A= 1/2 (5x 4)
 A= 10 square units

Parallelogram

Area= (base x height)
 b= 5 units
 h= 4 units
 A= 5 x 4
 A= 20 square units

Try these on your own! Find the area and perimeter of each of the following:

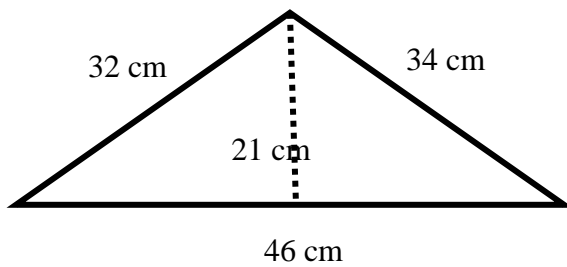
1.



Area=

Perimeter=

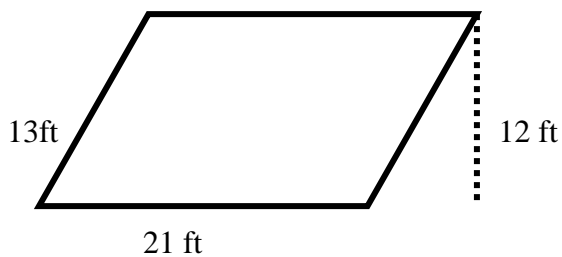
2.



Area=

Perimeter=

3.



Area=

Perimeter=

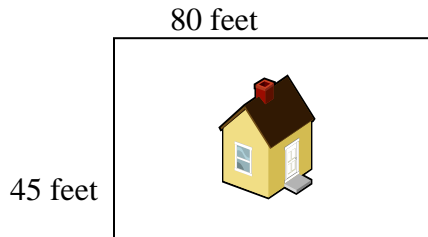
Check your answers

1. Area= 96 meters
Perimeter= 572 square meters
2. Area= 483 square cm
Perimeter= 112 cm

3. Area= 252 square ft
Perimeter= 68 ft

Quiz Yourself

1.



Mr. and Mrs. Jones are having a horrible time keeping their two dogs in the yard. They want to fence in their entire property. How many feet of fencing will they need?

2. Scott wants to put a triangular shaped hopscotch game in his yard and needs to know how much area it will take up. He wants the height to be 13 meters and the base 9 meters. How much of the yard will the game take up?
3. Debbie needs to tile the kitchen floor. Luckily the floor is a perfect square. All sides of the floor measure 10 feet. How many 1 foot square tiles will she need to complete the job?

Check Your Answers

1. They will need 250 feet of fencing. This is a perimeter problem. They only need to know the distance around the outside of their property.
2. 58.5 square meters. This is an area problem.
3. Debbie will need 100 of the tiles