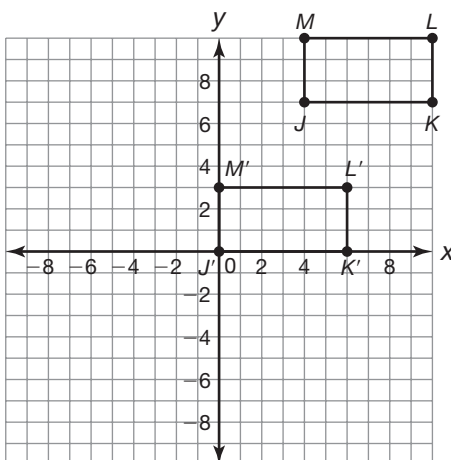


Name _____ Date _____

Transforming to a New Level!

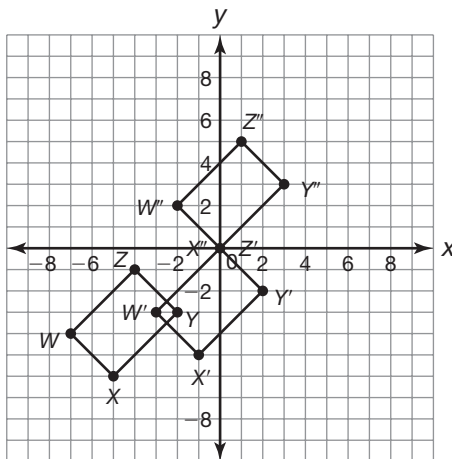
Using Transformations to Determine Area

1. Franco translates rectangle $JKLM$ so that it has one vertex on the origin. The result is rectangle $J'K'L'M'$. He claims that he doesn't have to use the Distance Formula to help him calculate the perimeter and the area of this translated rectangle.



- a. Is Franco correct? Why or why not?
- b. Maeko claims that you don't have to use the Distance Formula or translate the rectangle in order to calculate the perimeter and the area of the original rectangle. Is she correct? Why or why not?
- c. Give an example of a case in which translating a rectangle would be extremely helpful in simplifying the calculations for determining the perimeter and area of the rectangle.

2. Olivia translates rectangle $WXYZ$ vertically up 1 unit and horizontally to the right 4 units to produce the image $W'X'Y'Z'$. Thom translates the rectangle vertically up 6 units and horizontally to the right 5 units to produce the image $W''X''Y''Z''$.



- a. Would you prefer to use Olivia's translation or Thom's translation to determine the perimeter and the area of the rectangle? Explain your reasoning.
- b. Calculate the perimeter and the area of the rectangle. Show your work.

Name _____ Date _____

3. Consider a right triangle with side lengths 10, 24 and 26 inches.

a. Describe how increasing the side lengths by a factor of 3 will affect the perimeter of the triangle.

3

b. Describe how increasing the side lengths by a factor of 3 will affect the area of the triangle.

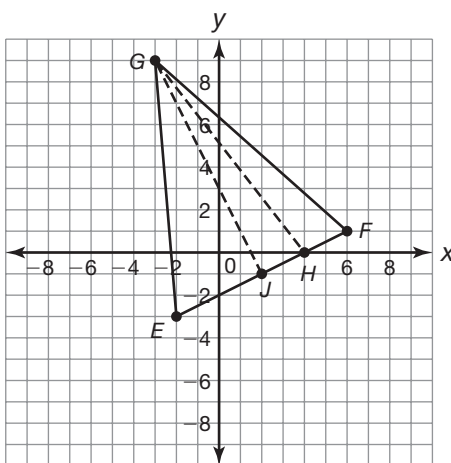
c. Describe how decreasing the side lengths by a factor of $\frac{1}{2}$ will affect the area of the triangle.

LESSON 3.2 Assignment

Name _____ Date _____

Looking at Something Familiar in a New Way Area and Perimeter of Triangles on the Coordinate Plane

1. Cisco claims that \overline{GH} is the height of triangle EFG , and Beth claims that \overline{GJ} is the height of triangle EFG .

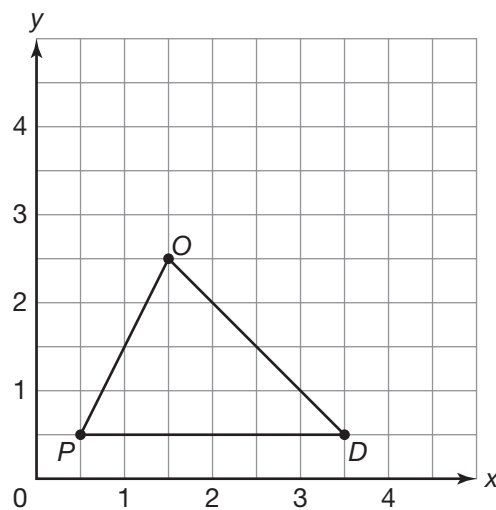


- a. Who is correct? Support your answer with mathematics.

- b. Calculate the area of triangle EFG . Show your work.

3

2. A few years ago, Leon planted a small triangular garden in his backyard. Recently, he has been thinking that the garden is too small. Now, he wants to double the area of the garden. His original garden is shown on the coordinate plane. Each unit represents one square foot.



Name _____ Date _____

a. Describe two ways Leon could double the area of his garden.

3

b. Because of the location of Leon's neighbors, he cannot extend the garden any farther horizontally. Use this information to manipulate the pre-image POD representing Leon's garden to double the area. Label the image as $PO'D$.

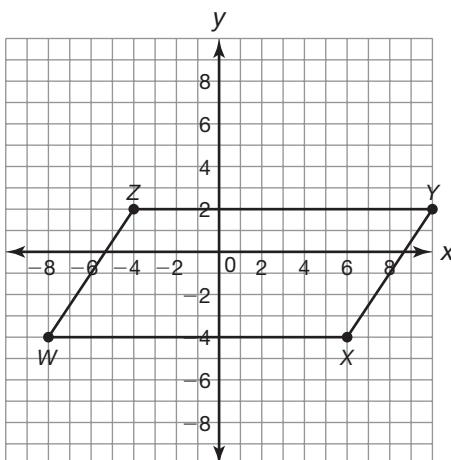
c. Determine the area of the original garden and the new garden to verify that the area has doubled.

Name _____ Date _____

Grasshoppers Everywhere!

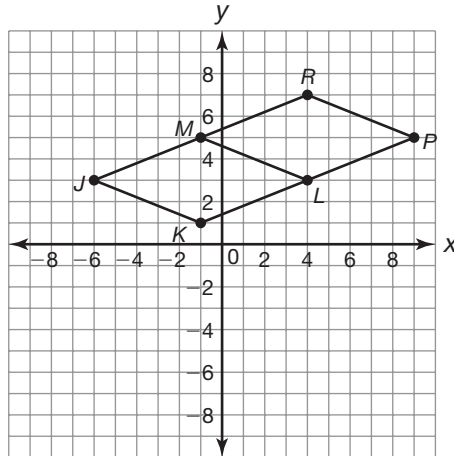
Area and Perimeter of Parallelograms on the Coordinate Plane

- Joel knows that the formulas to determine the areas of rectangles and non-rectangular parallelograms are the same. He multiplies the lengths of \overline{WX} and \overline{WZ} to determine the area of parallelogram $WXYZ$.



- Has Joel correctly determined the area of the parallelogram? Explain your reasoning.
- Calculate the area of parallelogram $WXYZ$. Show your work.

2. Parallelograms $JKLM$ and $JKPR$ are given. Without calculating the areas, determine whether or not the area of parallelogram $JKPR$ is twice that of the area of parallelogram $JKLM$. Explain how you determined your answer.



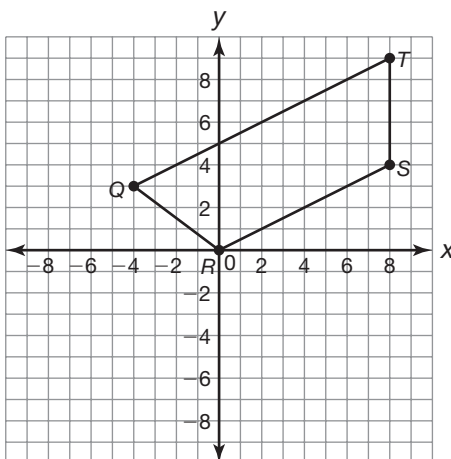
LESSON 3.4 Assignment

Name _____ Date _____

Leavin' on a Jet Plane

Area and Perimeter of Trapezoids on the Coordinate Plane

1. Trapezoid $QRST$ is given.



- a. Determine the perimeter of trapezoid $QRST$. Show your work. Round your answer to the nearest hundredth.

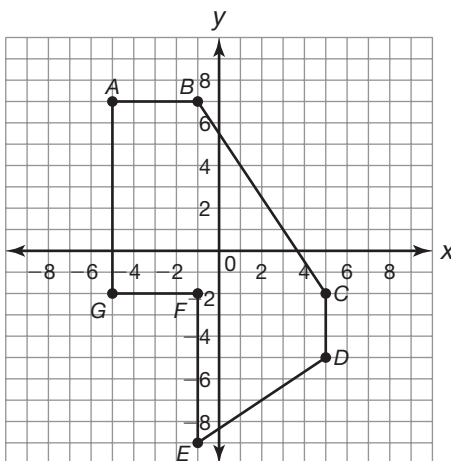
- b. Determine the area of trapezoid $QRST$. Show your work and explain how you determined your answer.

Name _____ Date _____

Composite Figures on the Coordinate Plane

Area and Perimeter of Composite Figures on the Coordinate Plane

- Composite figure $ABCDEFGG$ is given.



- Determine the perimeter of figure $ABCDEFGG$.

- b. Determine the area of figure $ABCDEFGH$.