Assignment

LESSON 5: In and Out and All About

Write

Describe how you can determine the area of a composite figure.

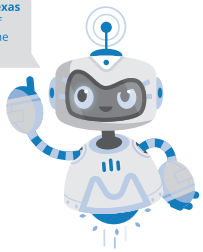
Remember

Rigid transformations can make calculating the perimeter and area of figures on the coordinate plane more efficient.

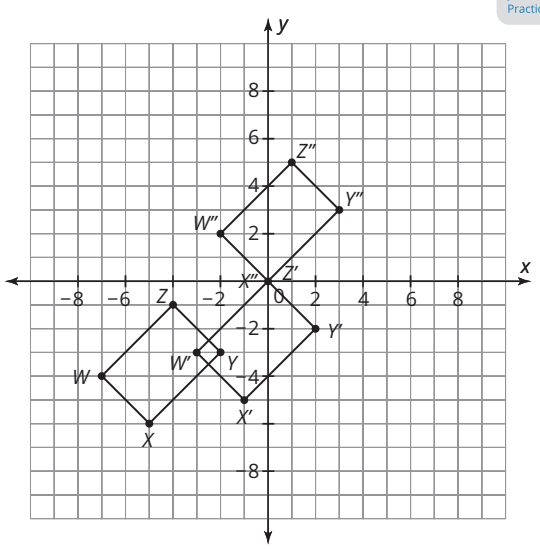
Any side of a triangle can be considered its base, and the height of the triangle is the perpendicular distance from the base to the opposite vertex.

Practice

Visit **livehint.com/texas** or use this QR code if you need a hint on the Practice questions.



1. 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"*.



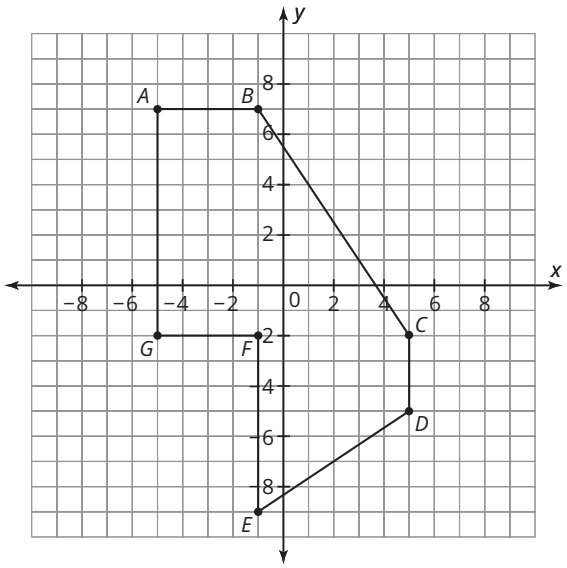
   a. Would you prefer to use Olivia's translation or Thom's translation to determine the perimeter and area of the rectangle? Explain your reasoning.

   b. Calculate the perimeter and area of the rectangle. Show your work.

   c. The dimensions of rectangle *WXYZ* are multiplied by a factor of 4. How do the perimeter and area of the resulting rectangle relate to the perimeter and area of the original rectangle?

   d. The dimensions of rectangle *WXYZ* are increased by 3 units. Ailish says that the area of the resulting rectangle is 9 times the area of the original rectangle. Is she correct? Explain your reasoning.

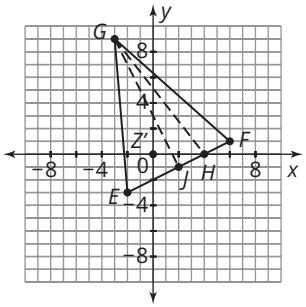
2. Composite figure *ABCDEFG* is given.



   a. Determine the perimeter of figure *ABCDEFG*.

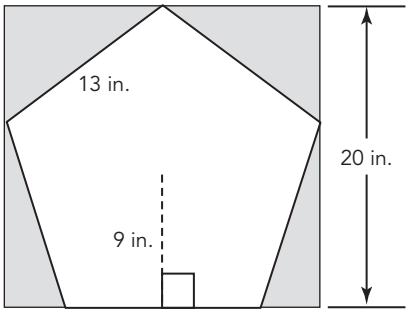
   b. Determine the area of figure *ABCDEFG*.

3. 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? Justify your response.
   b. Calculate the area of $\triangle EFG$. Show your work.

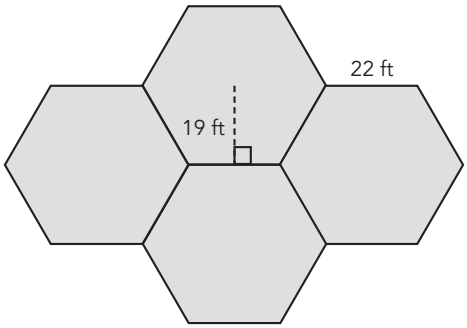


4. Calculate the area of each shaded region.

a.

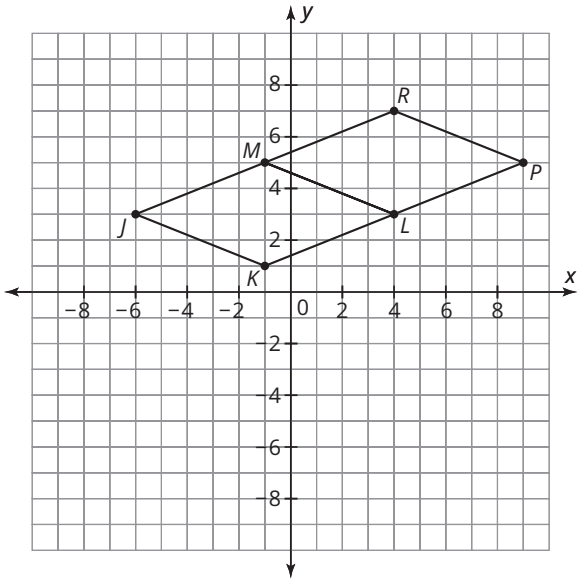


b.



Stretch

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



Review

1. The quadrilateral *ABCD* has the vertices *A* (−5, 4), *B* (0, 6), *C* (1, 3), and *D* (−4, 1). Determine whether it can be classified as a parallelogram. Justify your reasoning.
2. Triangle *DEF* has the vertices *D* (−2, 3), *E* (2, −1), and *F* (−5, −4). Determine whether it is scalene, isosceles, or equilateral. Explain your reasoning.
3. Solve for *b* in the equation $\frac{a-b}{12} = 11 - 6a$.