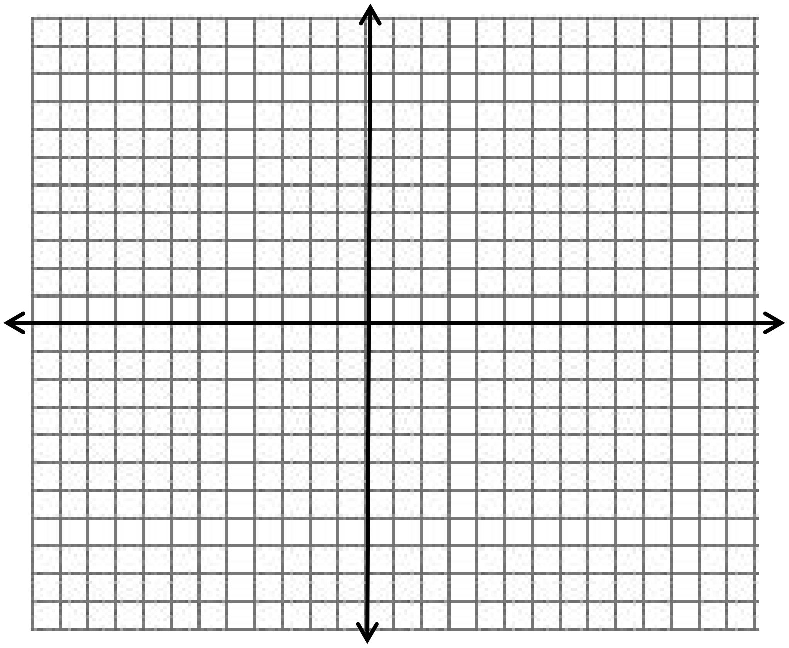
Area and Perimeter

Name:________________________ Date:_________



RECTANGLE:

PARALLELOGRAM:

TRIANGLE:

TRAPEZOID:

PERIMETER:

1. Plot the following points on the graph above: R(-3, 2), T(-3, 7), W(-9, 2), S(-9, 7). Now connect the points.

2. Name the shape:_____________________. Count the number of squares contained within the figure _____.

3. Is there an easier way to find the number of squares contained within the figure? Explain:

   ____

4. So to find the area for a rectangle you could use the formula: _______________

5. Transfer this formula into the box to the right of the graph that is labeled “RECTANGLE”. Explain why your final units should be listed as “units^2”.

   ____

   ____

6. Next translate (move) the figure 12 units right and two units down. Is the new figure congruent to the old one? _____ How do you know? ____

7. What figures are created when you draw a diagonal through this figure? _________________________
   Do these new figures have equal areas?________________ Color in one of the shapes created in the new figure.

8. What part of the rectangle area does this new shape represent? _______ The formula to find the area of a triangle is: ____________

9. When using this formula, the “base” and the “height” of the triangle are ___________________________.

10. Transfer the formula for a triangle into the boxes at the right of the graph.

1. Plot the following points on the graph above: A(-3, -4), B(-5, -7), C(-8, -4), D(-10, -7). Now connect the points.

2. Name the shape: ______________________ What is the height of the figure? _______What is the length of the base? ______

3. The formula to find the area of a ________________________ is _________________________.

4. When using this formula, the "base" and the "height" are _______________________________.

5. Transfer the formulas for these figures into the boxes at the right of the graph.

1. Plot the following points on the graph: H(2, -2), J(6, -2), K(8, -6), G(1, -6). Connect the points.

2. Name the shape:______________________ What is the height of the figure?_______

3. Draw a diagonal. What two shapes are created? _______________ Do they have the same height?_______

4. Do the triangles have the same base?_______ Fill in the following to find the area of this figure:

Area of Triangle #1 + Area of Triangle #2

$A = \frac{1}{2} bh$ + $A = \frac{1}{2} bh$

½ (____)(____) + ½ (____)(____)

____ + ____

____

- If you were to put this together into one formula it would look like this: $A = \frac{1}{2}b_1h + \frac{1}{2}b_2h$
- Above we noted that the bases would not be the same so one is represented with b_1 and the other is b_2.
- If you look at what the two pieces have that are the same you see _____ and _____ are the same for each.
- We could use the distributive property and pull those outside of a set of parenthesis leaving the bases (that are different) inside of the parenthesis. Now it looks like this: $A = \frac{1}{2} h(b_1 + b_2)$ The standard way that we see this formula written is $A = \frac{1}{2} h(b_1 + b_2)$.
- What property was used to move between these two formulas? ______________

*** The two bases are always the sides that are _________________________ to one another. ***

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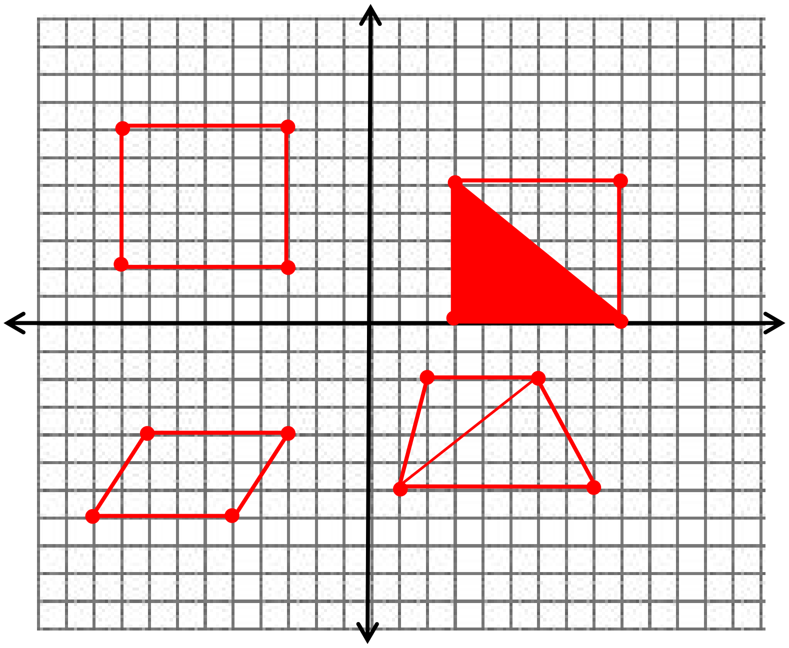

RECTANGLE **A = *l* x *w***
PARALLELOGRAM **A = *b* x *h***
TRIANGLE **A = ½ *b* x *h***
TRAPEZOID **$A = \frac{1}{2}(b_1 \text{ x } b_2)h$**
PERIMETER **P = add all sides**

1. Plot the following points on the graph above: R(-3, 2), T(-3, 7), W(-9, 2), S(-9, 7). Now connect the points.

2. Name the shape:____**rectangle**____ Count the number of squares contained within the figure._**30**_

3. Is there an easier way to find the number of squares contained within the figure? Explain:

   instead of counting all squares you could multiply the number in the length times the number in the width

4. So to find the square area for a rectangle you could use the formula: _____**A = l x w**_____

5. Transfer this formula into the box to the right of the graph that is labeled "RECTANGLE". Explain why your final units should be listed as "units^2" _____**answers vary; the area represents the number of squares that it would take to fill the figure**____

6. Next translate the figure 12 units right and two units down. Is the new figure congruent to the old one?_**yes**_

7. How do you know?___**the size did not change when it was translated-each point made the same move**___

8. What figures are created when you draw a diagonal through this figure?_____**triangles**__ Do these new figures have equal areas?___**yes**_____ Color in one of the triangles created in the new figure.

9. What part of the rectangle area does this represent?__**1/2**__ The formula to find the area of a triangle:_**A = ½ bh**
10. When plugging in this formula the "base" and the "height" of the triangle must be __**perpendicular**___.

1. Plot the following points on the graph above: A(-3, -4), B(-5, -7), C(-8, -4), D(-10, -7). Now connect the points.
2. Name the shape:___**parallelogram**___ What is the height of the figure?_**3 units** What is the length of the base?_**5**__
3. The formula to find the area of a __**parallelogram**____ is ___**A = bh**_.
4. When plugging in this formula the "base" and the "height" must be __**perpendicular**___.
5. Transfer the formulas for these figures into the boxes at the right of the graph.

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1. Plot the following points on the graph: H(2, -2), J(6, -2), K(8, -6), G(1, -6). Connect the points.
2. Name the shape:_____**trapezoid**____ What is the height of the figure?___**4 units**____
3. Draw a diagonal. What two shapes are created?___**triangles**___ Do they have the same height?__**yes**__
4. Do the triangles have the same base?__**no**___ Fill in the following to find the area of this figure:

Area of Triangle #1 + Area of Triangle #2

A = ½ *bh* **+** **A = ½ *bh***

½ (4)(4) **+** **½ (7)(4)**

8 **+** **14**

22 units^2

If you were to put this together into one formula it would look like this: $A = ½b_1h + ½b_2h$

Above we noted that the bases would not be the same so one is represented with b_1 and the other is b_2.

If you look at what the two pieces have that are the same you see _**1/2**_ and _**h**__ are the same for each.

We could use the distributive property and pull those outside of a set of parenthesis leaving the bases (that are different) inside of the parenthesis. Now it looks like this: $A = ½ h(b_1 + b_2)$ The standard way that we see this formula written is $A = ½(b_1 + b_2)h$. What property was used to move between these two formulas?_**communtative** The two bases are always the sides that are _____**parallel**___to one another.