

FIGURE A

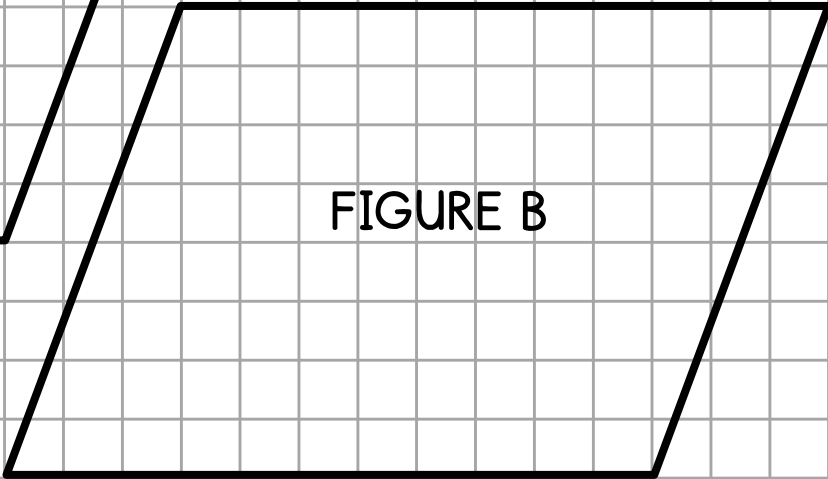


FIGURE B

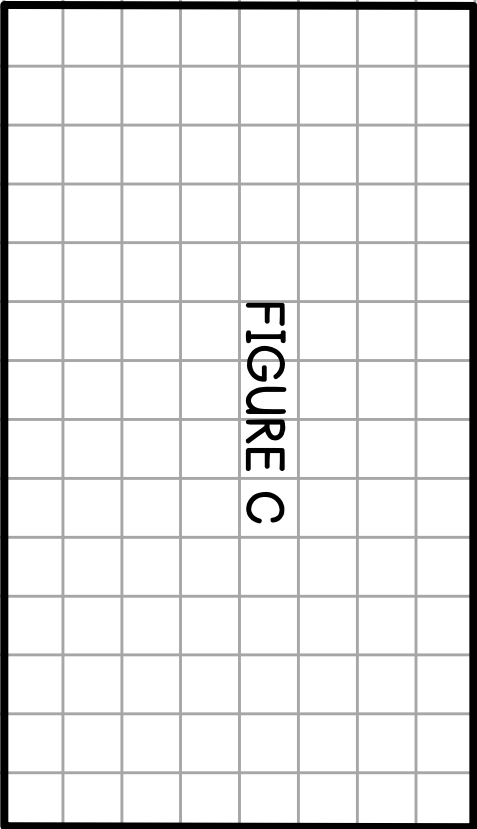


FIGURE C

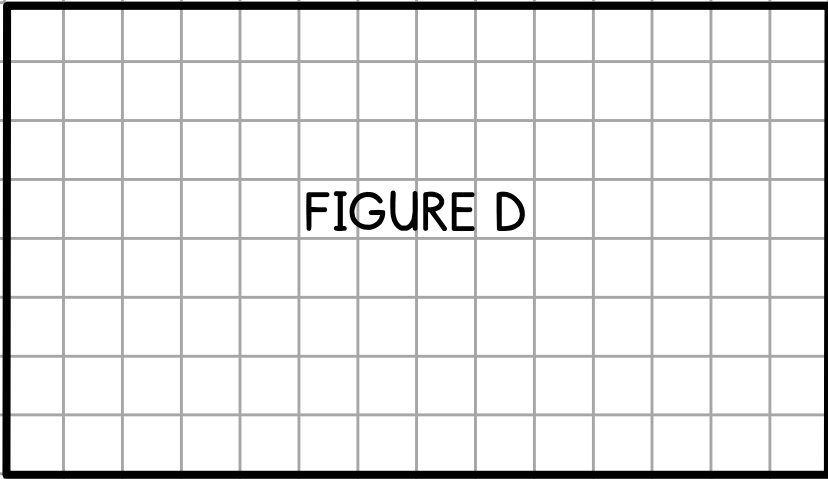


FIGURE D

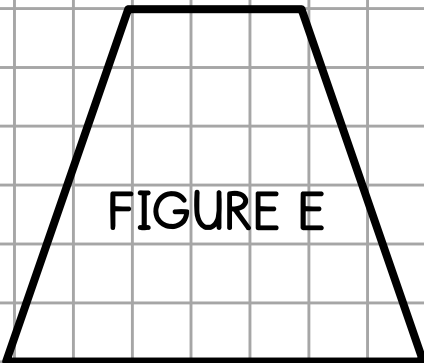


FIGURE E

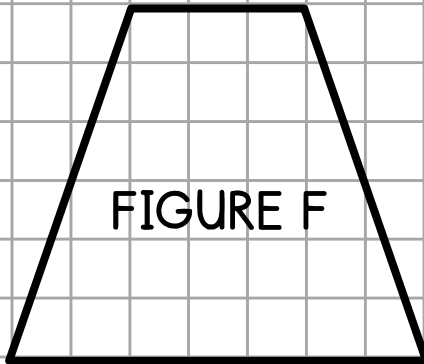


FIGURE F

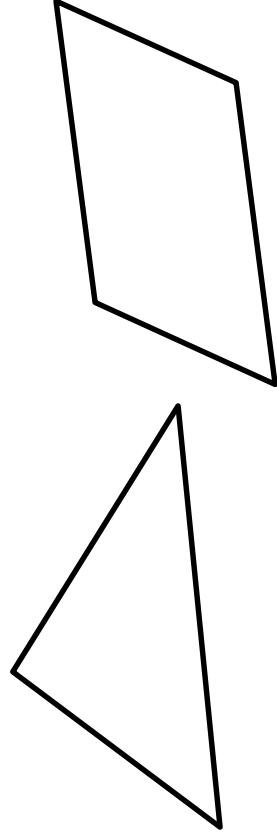
RUBRIC

Name: _____ Class: _____
 Date: _____

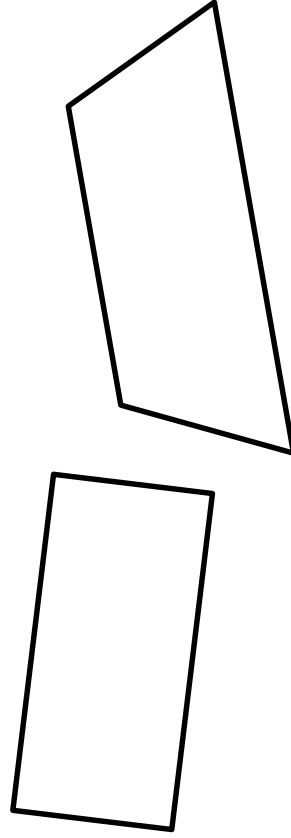
	ABOVE STANDARD	MET STANDARD	BELOW STANDARD
MATHEMATICAL CONTENT	Model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes without error _____ points	Model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes with few errors _____ points	Model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes with several errors _____ points
MATHEMATICAL THINKING	Provides thoughtful reasoning and explanation _____ points	Provides some reasoning and explanation _____ points	Does not provide thoughtful reasoning and explanation _____ points
PARTICIPATION	Participates fully _____ points	Participates with minor redirects from teacher _____ points	Participates with major redirects from teacher _____ points
SHOWS WORK	Shows work for 100% of the questions _____ points	Shows the work for 80% or more of the questions _____ points	Shows work for less than 80% of the questions _____ points
FOLLOWS DIRECTIONS	Follows directions and criteria fully _____ points	Follows directions and criteria with few errors _____ points	Follows directions and criteria with multiple errors. _____ points

TOTAL POINTS: _____

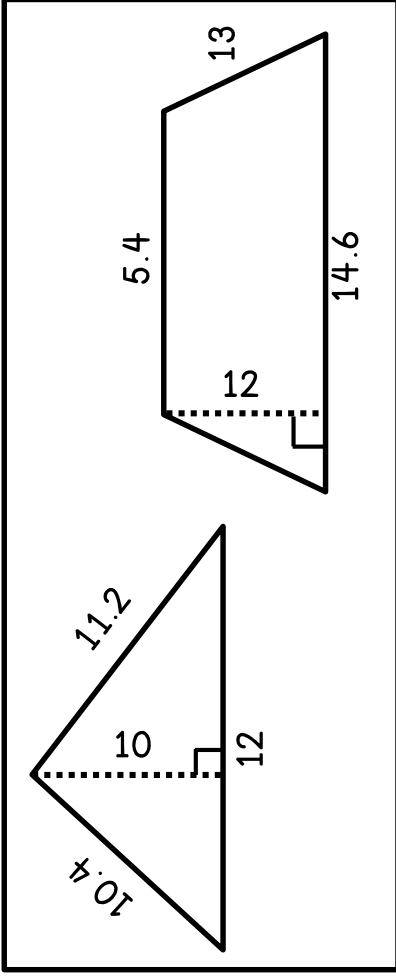
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MODELLING AREAS



APPLY AREA



"to find the area of the triangle, you can use $A = \frac{1}{2} (10.4) \cdot 12$ because 10.4 is the tallest point" -Mo

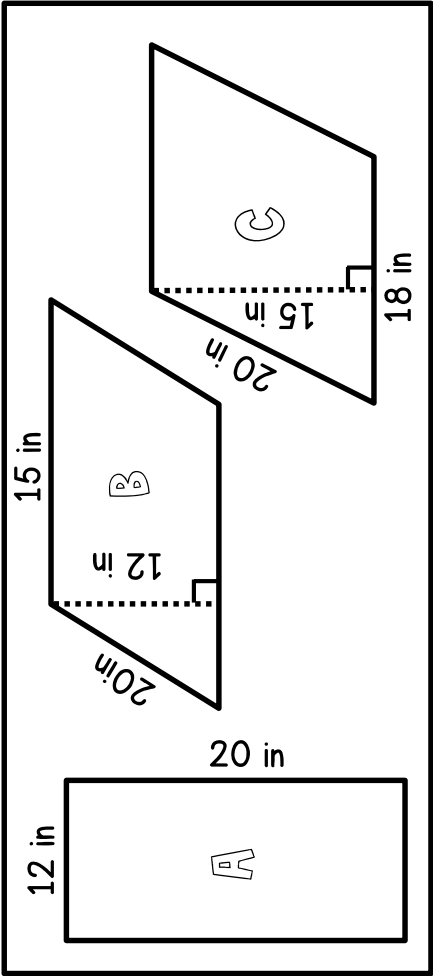
"the area of the triangle is equal to the area of the trapezoid because you get 120 with both formulas" -Priscilla

"the area of the triangle is exactly half the area of the trapezoid" -Art

Based on your exploration and your understanding of the formulas, determine if you agree or disagree with the statements above.

- I _____ with Mo because _____
- I _____ with Art because _____
- I _____ with Priscilla because _____

APPLY AREA



"figures A and B will have the same area because you multiply $12(20)$ "
-Ryan

"figure C has the largest area"
-Li

"you can use the same formula to determine the area of shapes A, B, and C"
-Felicia

Based on your exploration and your understanding of the formulas, determine if you agree or disagree with the statements above.

I _____ with Ryan because _____

I _____ with Li because _____

I _____ with Felicia because _____

RECTANGLES

Cut out "Figure C" and glue it below. Label the base and height of the rectangle.

- Count the number of squares for each of the measurements below:
 - a. base _____
 - b. height _____
 - c. total number of squares _____

2. How are the base and height related to the total number of squares?

TRIANGLES

The tables below show the areas of 3 triangles and 3 rectangles.

RECTANGLE

	BASE	HEIGHT	AREA
A	2	4	8
B	5	10	50
C	7	8	56

TRIANGLE

	BASE	HEIGHT	AREA
A	2	4	4
B	5	10	25
C	7	8	28

a. Using this information, describe how the area of the triangle is related to the area of the rectangle?

b. Using your understanding of the area of the rectangle formula, write a formula to find the area of a triangle.



TRAPEZOIDS

1. Count the number of squares for each of the measurements below:

- a. base 1 _____
- a. base 2 _____
- b. height _____
- c. approximate number of squares _____

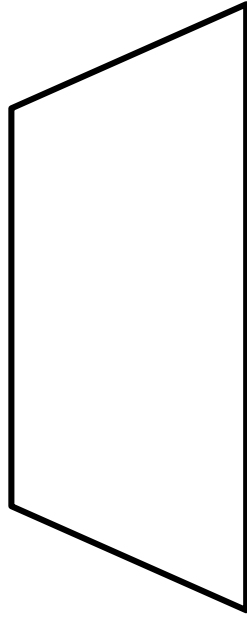
2. How is the area of the trapezoid related to the area of the parallelogram?

3. What is another way you could break up the trapezoid or rearrange it into shapes to find the area? Apply your ideas to "Figure F" and paste the shapes below.



TRAPEZOIDS

Use your mathematics reference chart to record the formula for the area of a trapezoid. Label the various dimensions below.



a. What do you notice about the formula for the area of a trapezoid? How does this compare to the formula for the area of a parallelogram and the area of the triangle?

Cut out "Figure E." Draw a horizontal line inside the trapezoid to create two figures with equal heights of 3 units. Then, rearrange the shape to form a parallelogram and paste it in the space below.

TRIANGLES

Cut out "Figure D." Draw a diagonal from one vertex to the opposite vertex. Cut along the line and label the triangles A and B.

1. Count the number of squares in the triangles for the measurements below:

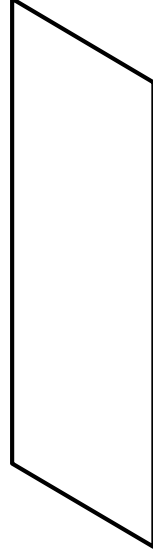
- a. base _____
- b. height _____
- c. approximate number of squares _____

2. How are the base and height related to the total number of squares?

3. Trace the outline of triangle A in the space above, then lay triangle B over the outline. What do you notice? How is this connected to the formula?

PARALLELOGRAMS

Given the shape below, draw lines to break the shape into triangles and rectangles.



a. Use these shapes to describe a potential method for finding the area of a parallelogram.

b. Test out your hypothesis by cutting and pasting "Figure A" into the pieces you described above.

c. Describe how the area of the figure changed when the parallelogram was decomposed.

PARALLELOGRAMS

Cut out "Figure B." Draw a vertical line from one vertex to the opposite base. Cut along your line, then arrange the pieces to form a rectangle. Paste your rectangle in the space below.

1. Count the number of squares for each of the measurements below:

- a. base _____
- b. height _____
- c. approximate number of squares _____

2. Predict the formula for the area of a parallelogram.

3. Describe how the height of the parallelogram is represented. Label it on the figure above.
