Welcome (back)!

We will have a seating chart so I can get to know your names faster, and take faster attendance.

My Website: **simpsondchs.weebly.com**

Check this website for Keys, Notes, Updates

Lunch: 11:37-11:57

Warm-Up

In your groups, try to determine an accurate prediction for the height of the **statue only** (not including the pedestal). Write a brief explanation of the method you used to determine your prediction. Your group's answer will be compared to the actual height of the statue.

The name of the statue is the Hermann Monument.
Its actual height is 87.2 ft (26.57 meters).

The pedestal is 88.2 ft (26.89 meters).

7.0 Dilations

Learning Targets:

a. I can sketch a dilation.

b. I can apply ordered pair rules to dilations.

How would you describe the transformation from the model biplane to the life size biplane?

DILATION: A transformation that produces an image which is the exact same shape as the pre-image, but not the same size. Dilations are centered on the origin (0, 0), unless noted otherwise.

1:24

SCALE FACTOR A ratio of the form:

$$r = \frac{image\ length}{pre-image\ length}$$

fraction
comparison

In general, the transformation rule for a dilation is (x, y) → (rx, ry) where *r* represents the scale factor of the polygon.

Examples:

1. Graph the image of the triangle below using a scale factor of 2.

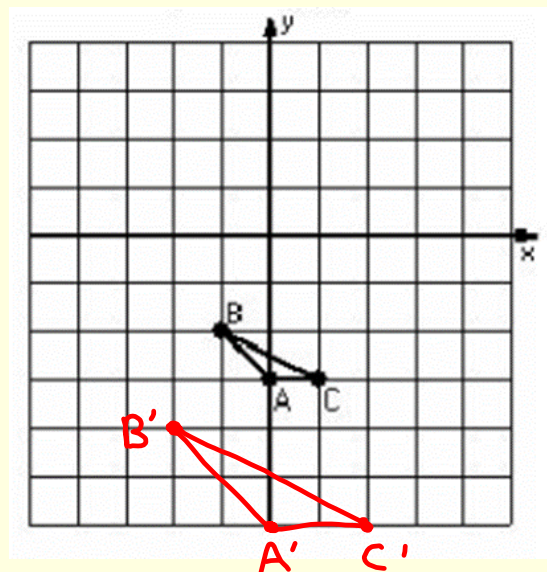Transformation Rule: (x, y) → (2x, 2y)

A ___(0, -3)___ → A′(0, -6)

B ___(-1, -2)___ → B′(-2, -4)

C ___(1, -3)___ → C′(2, -6)

′ prime

Examples:

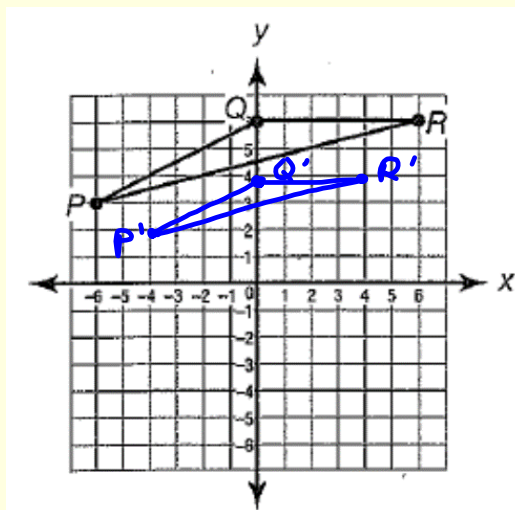2. Graph the image of the triangle below using a scale factor of $\frac{2}{3}$

Transformation Rule: $(x, y) \rightarrow (\frac{2}{3}x, \frac{2}{3}y)$

P __(-6, 3)__ $\rightarrow$ P' $(-4, 2)$

Q __(0, 6)__ $\rightarrow$ Q' $(0, 4)$

R __(6, 6)__ $\rightarrow$ R' $(4, 4)$

Examples:

3. If the scale factor is <u>greater than 1</u>, the figure becomes _____.

If the scale factor is <u>between 0 and 1</u>, the figure becomes _____.

Examples:

4. Triangle *ABC* has vertices *A* (0, 2), *B* (4, 4), and *C* (-1, 4).

   a)   Write the transformation rule for the image with a scale factor of 4?

   $(x, y) \rightarrow (4x, 4y)$

   b)   What are the vertices of its *image* with a scale factor of 4?

   A' (0, 8)   B' (16, 16)   C' (-4, 16)

   c)   Write the transformation rule for the image with a scale factor of $\frac{1}{2}$

   $(x, y) \rightarrow (\frac{1}{2}x, \frac{1}{2}y)$

   d)   What are the vertices of its image with a scale factor of $\frac{1}{2}$?

   A'(0, 1)   B'(2, 2)   C' (-0.5, 2)

   $(-\frac{1}{2}, 2)$

Examples:

5. Graph quadrilateral *PQRS* has vertices *P* (-2, 4), *Q* (4, 4), *R* (4, -2), and *S* (- 4, - 4).

a) Graph the image P'Q'R'S' if it has a scale factor of 2.

b) Graph the image P"Q"R"S" if it has a scale factor of $\frac{1}{2}$.

Homework: 7.0 Dilations Practice WS