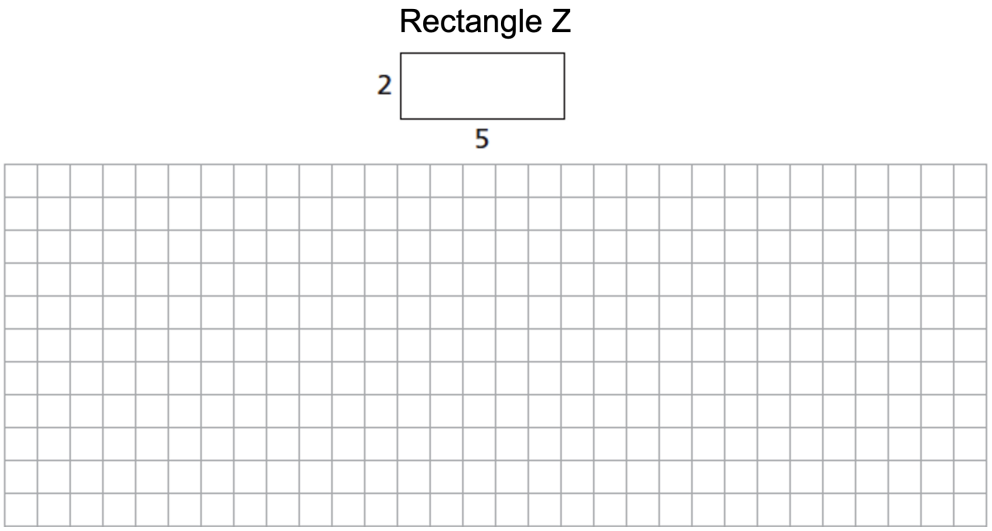
Name_____Date_____Class _____

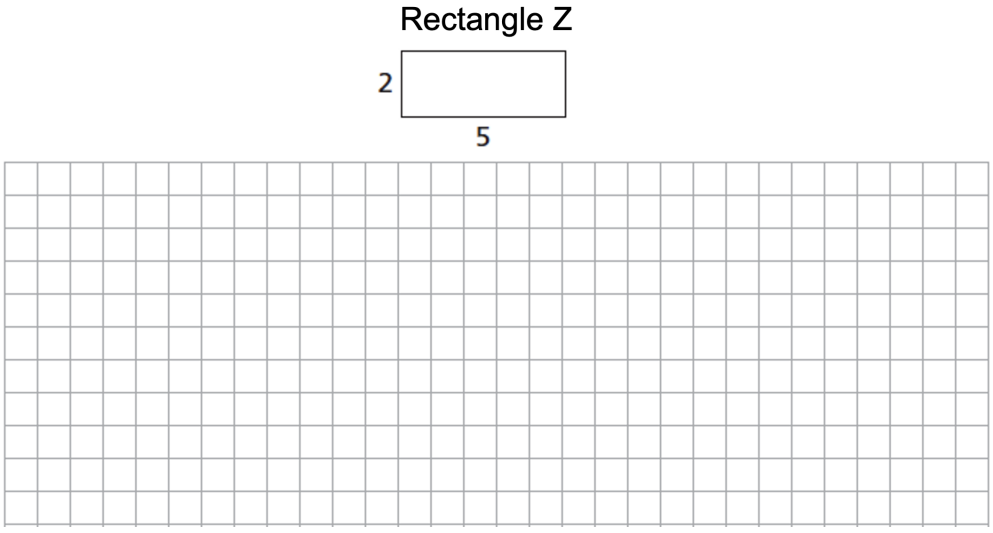
Stretching and Shrinking: Unit Test

1. a. Rectangle Z is sketched below. Rectangle M is similar to Rectangle Z.
The scale factor from Z to M is 2. Draw and label Rectangle M on the grid.



b. How does the scale factor of 2 change the **area** and **perimeter** of rectangle Z?

c. Rectangle T is similar to Rectangle Z. The scale factor from Z to T is 3.
Draw and label Rectangle T on the grid.



d. How does the scale factor of 3 change the **area** and **side lengths** of rectangle Z?

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2. a) Suppose a triangle is drawn on a coordinate grid. Which of the following rules will transform the triangle into a similar triangle? Circle the rules that work.

Rule A (3x, 3y)	Rule B (x + 3, y + 2)	Rule C (2x, 4y)
Rule D (2x, 2y + 1)	Rule E (x – 3, 2y – 3)	Rule F (1.5x, 1.5y)

b) For each of the rules that will make a similar triangle, give the scale factor from the original triangle to its image.

3. A photo of art students in pottery class measures 12 centimeter by 20 centimeters. The teacher wants to enlarge the photo to fit on a large poster.

a. Can the original photo be enlarged to 50 centimeter by 80 centimeters? Explain.

b. Can the original phot be enlarged to 42 centimeter by 70 centimeters? Explain.

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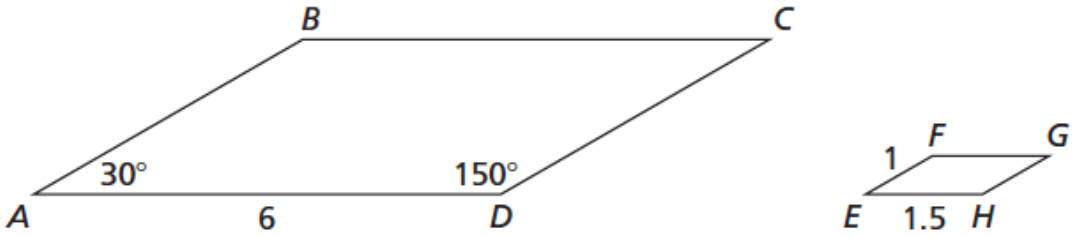
4. The parallelograms below are similar.



a. Find the length of side *AB* and the measure of angle *E*.

$\overline{AB}$ = _____ ∠ E = _____

b. Find the ratio of the lengths of two adjacent sides in one parallelogram. Then find the ratio of the corresponding side lengths in the other. How do the ratios compare?

c. Find the ratio of a pair of corresponding sides in the two parallelograms. What information does this ratio tell you about the two parallelograms? Explain.

5. Use the diagram below to determine the height of the flagpole

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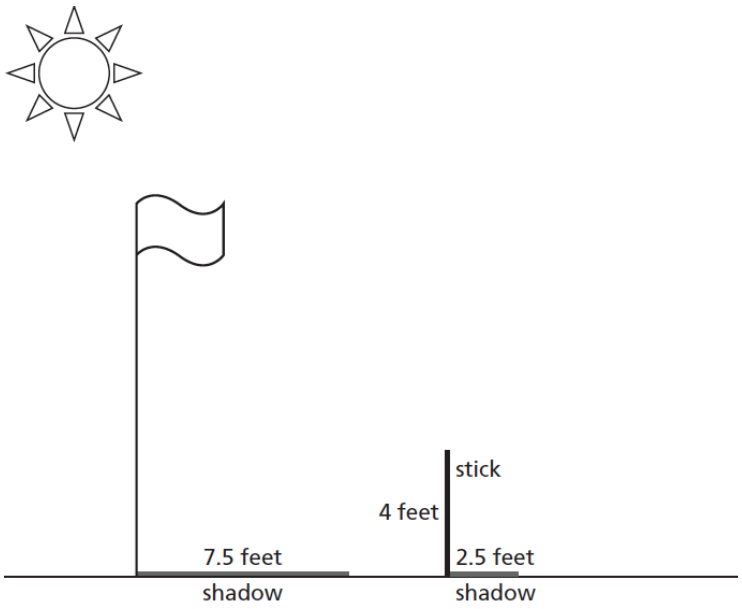

6. Determine whether each statement is true or false. Circle your response and then explain your reasoning.

a. Any two equilateral triangles are similar. **True** | **False**

Explain:

b. Any two rectangles are similar. **True** | **False**

Explain:

c. Any two squares are similar. **True** | **False**

Explain:

7. What questions do you ask yourself to decide if two figures are similar?

8. Examine each conjecture. Is it true? Explain.

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Isaiah's Conjecture	Two rectangles are similar if the ratios of corresponding adjacent side lengths are equal.

Noah's Conjecture	Isaiah's conjecture is true for all parallelograms.

Anna's Conjecture	Isaiah's conjecture is true for triangles if the corresponding angles are equal

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