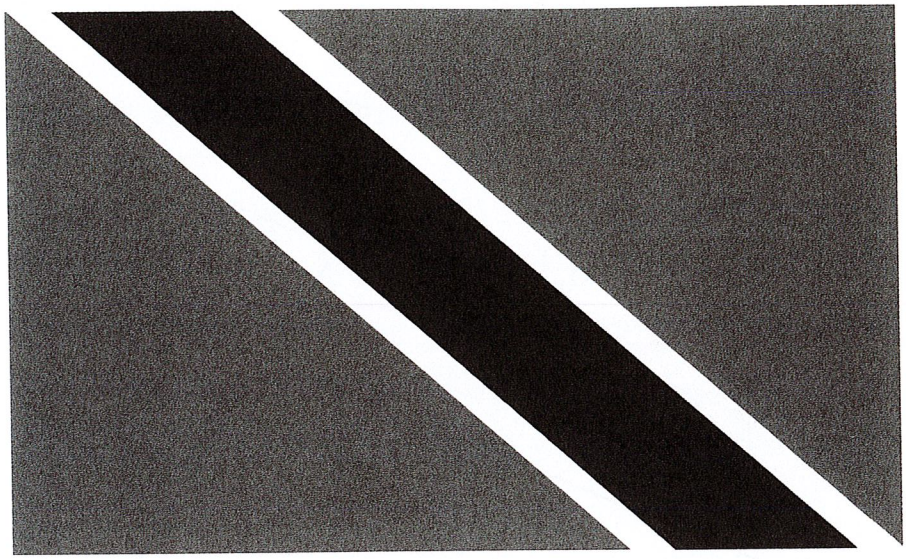
Unit 1 Name _____ Due Date _____ Hour _____

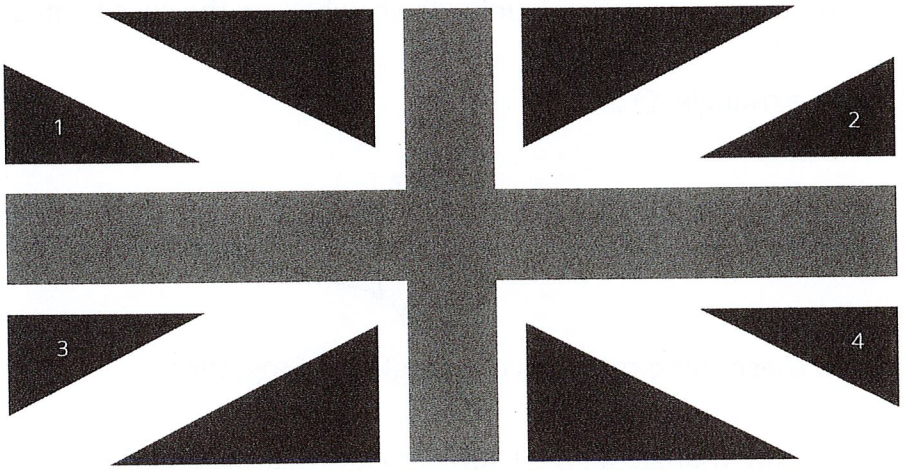
Lesson 10 Practice Problems

1. Here is the design for the flag of Trinidad and Tobago.



Describe a sequence of translations, rotations, and reflections that take the lower left triangle to the upper right triangle.

2. Here is a picture of an older version of the flag of Great Britain. There is a rigid transformation that takes Triangle 1 to Triangle 2, another that takes Triangle 1 to Triangle 3, and another that takes Triangle 1 to Triangle 4.

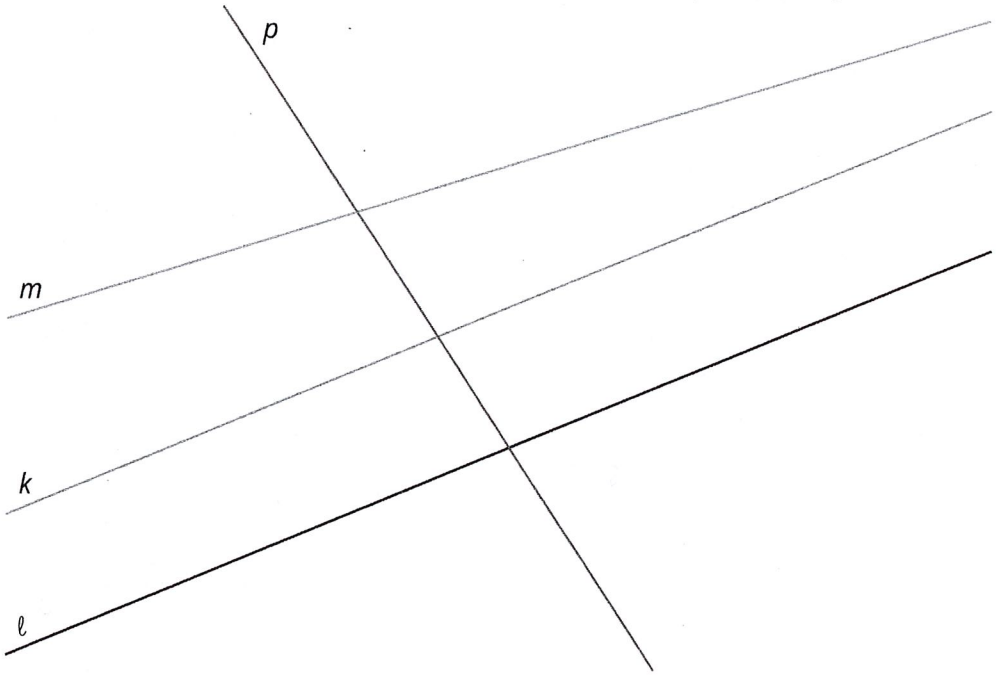


a. Measure the lengths of the sides in Triangles 1 and 2. What do you notice?

b. What are the side lengths of Triangle 3? Explain how you know.

c. Do all eight triangles in the flag have the same area? Explain how you know.

3. a. Which of the lines in the picture is parallel to line ℓ? Explain how you know.

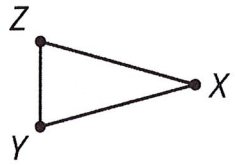


b. Explain how to translate, rotate or reflect line ℓ to obtain line k.

c. Explain how to translate, rotate or reflect line ℓ to obtain line p.

4. Point A has coordinates $(3, 4)$. After a translation 4 units left, a reflection across the x-axis, and a translation 2 units down, what are the coordinates of the image?

5. Here is triangle XYZ:



Draw these three rotations of triangle XYZ together.

a. Rotate triangle XYZ 90 degrees clockwise around Z.
b. Rotate triangle XYZ 180 degrees around Z.
c. Rotate triangle XYZ 270 degrees clockwise around Z.