

Unit 2 Lesson 13: Similar Triangles

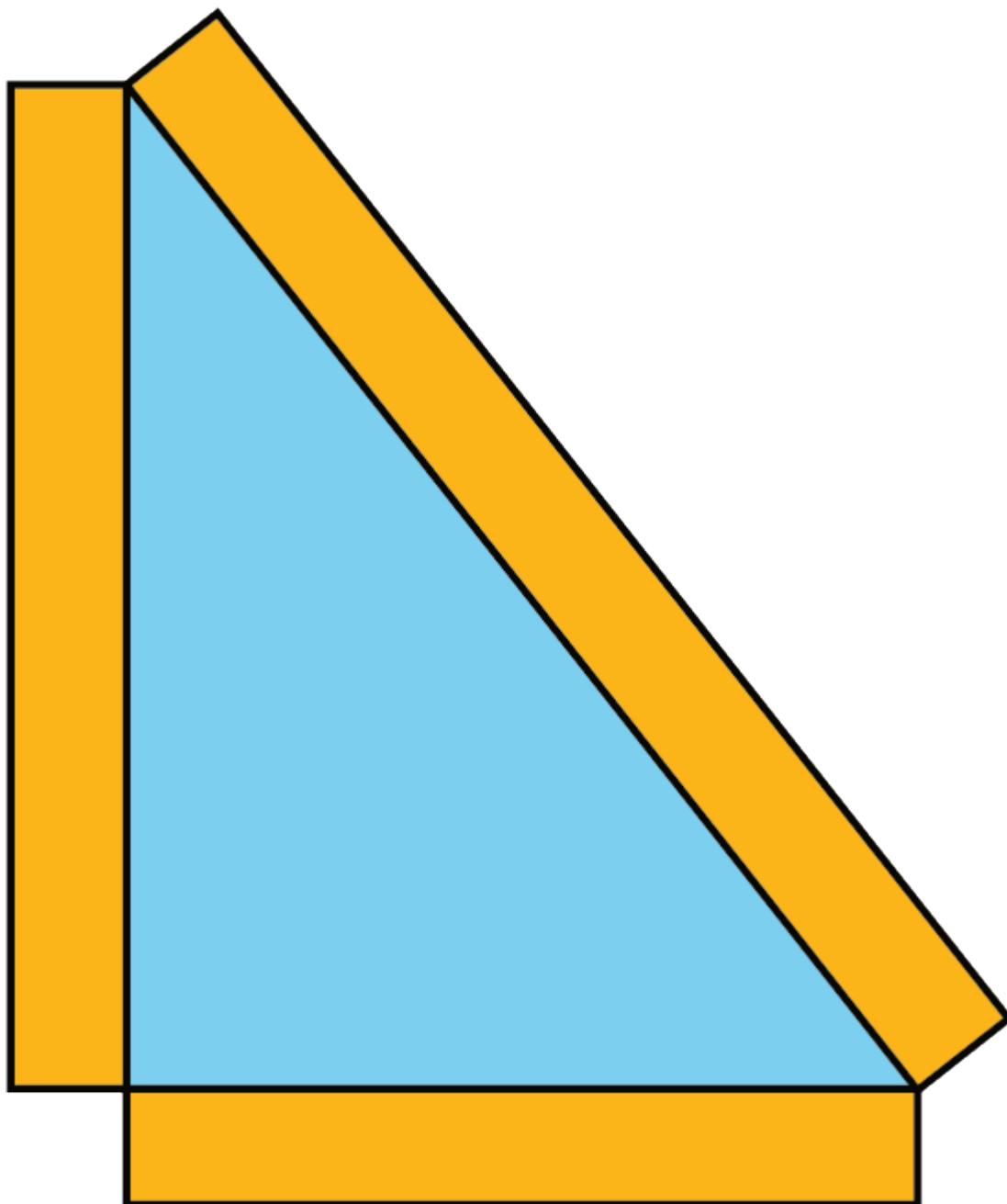
1 Equivalent Expressions (Warm up)

Student Task Statement

Create three different expressions that are each equal to 20. Each expression should include only these three numbers: 4, -2, and 10.

2 Making Pasta Angles and Triangles

Images for Launch

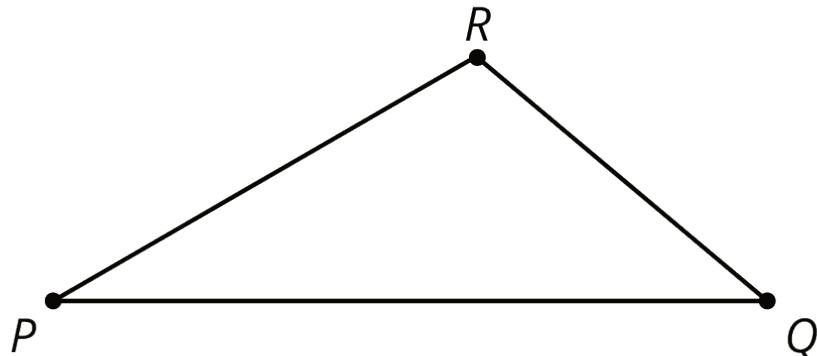


Student Task Statement

Your teacher will give you some dried pasta and a set of angles.

1. Create a triangle using three pieces of pasta and angle *A*. Your triangle *must* include the angle you were given, but you are otherwise free to make any triangle you like. Tape your pasta triangle to a sheet of paper so it won't move.

- a. After you have created your triangle, measure each side length with a ruler and record the length on the paper next to the side. Then measure the angles to the nearest 5 degrees using a protractor and record these measurements on your paper.
- b. Find two others in the room who have the same angle A and compare your triangles. What is the same? What is different? Are the triangles congruent? Similar?
- c. How did you decide if they were or were not congruent or similar?
2. Now use more pasta and angles A , B , and C to create another triangle. Tape this pasta triangle on a separate sheet of paper.
- a. After you have created your triangle, measure each side length with a ruler and record the length on the paper next to the side. Then measure the angles to the nearest 5 degrees using a protractor and record these measurements on your paper.
- b. Find two others in the room who used your same angles and compare your triangles. What is the same? What is different? Are the triangles congruent? Similar?
- c. How did you decide if they were or were not congruent or similar?
3. Here is triangle PQR . Break a new piece of pasta, different in length than segment PQ .



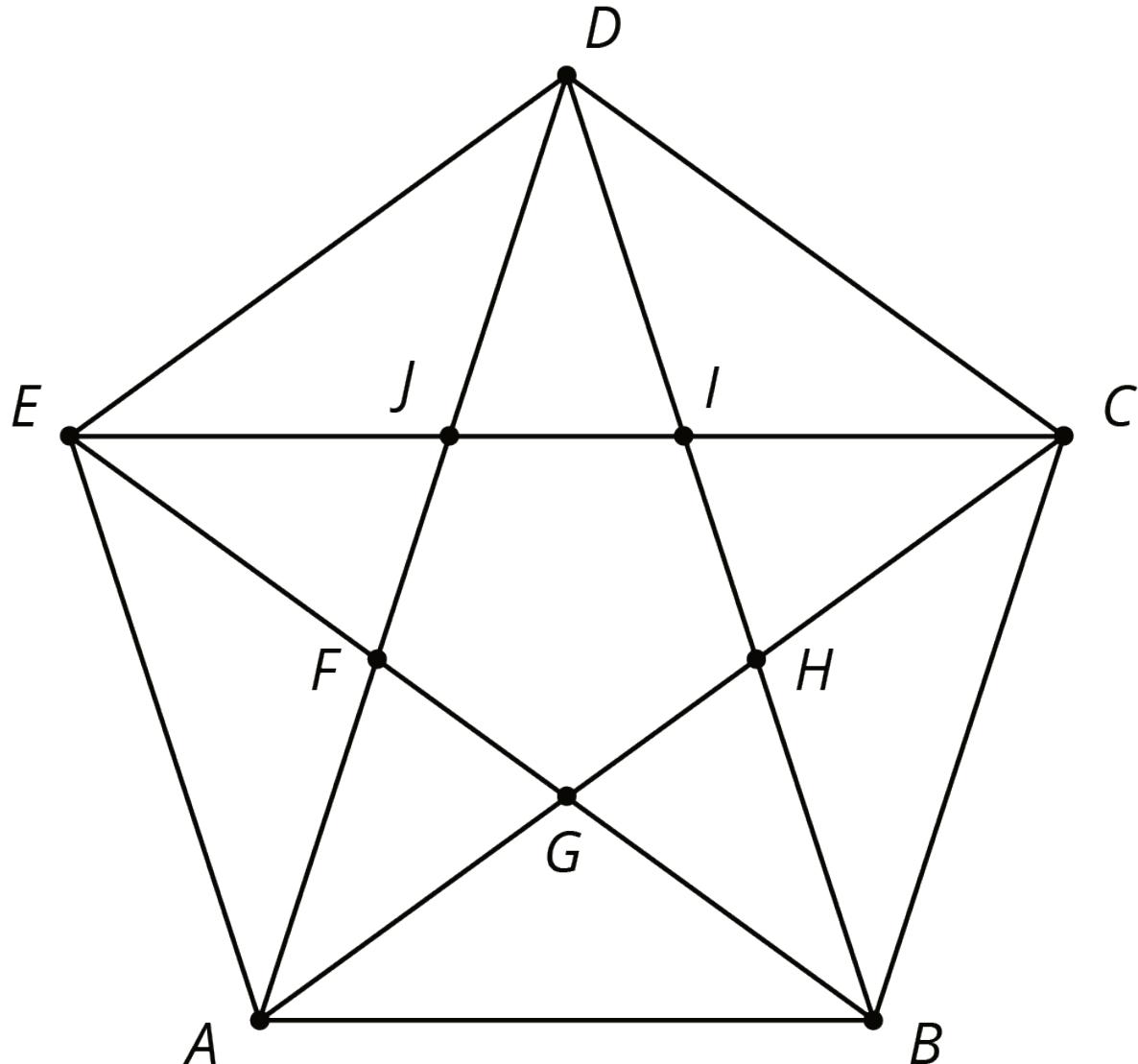
- Tape the piece of pasta so that it lays on top of line PQ with one end of the pasta at P (if it does not fit on the page, break it further). Label the other end of the piece of pasta S .
- Tape a full piece of pasta, with one end at S , making an angle congruent to $\angle PQR$.

- Tape a full piece of pasta on top of line PR with one end of the pasta at P . Call the point where the two full pieces of pasta meet T .
- a. Is your new pasta triangle PST similar to $\triangle PQR$? Explain your reasoning.
 - b. If your broken piece of pasta were a different length, would the pasta triangle still be similar to $\triangle PQR$? Explain your reasoning.

3 Similar Figures in a Regular Pentagon (Optional)

Student Task Statement

1. This diagram has several triangles that are similar to triangle DJI .



- a. Three different scale factors were used to make triangles similar to DJI . In the diagram, find at least one triangle of each size that is similar to DJI .
b. Explain how you know each of these three triangles is similar to DJI .
2. Find a triangle in the diagram that is not similar to DJI .

Images for Activity Synthesis

