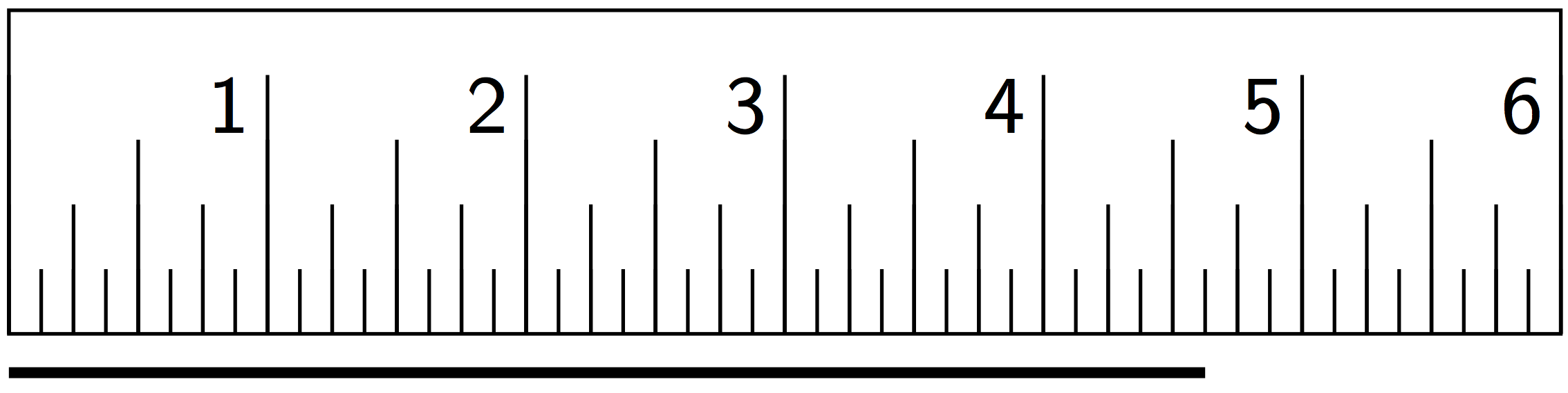
## Lesson 6: No Bending or Stretching

Let’s compare measurements before and after translations, rotations, and reflections.

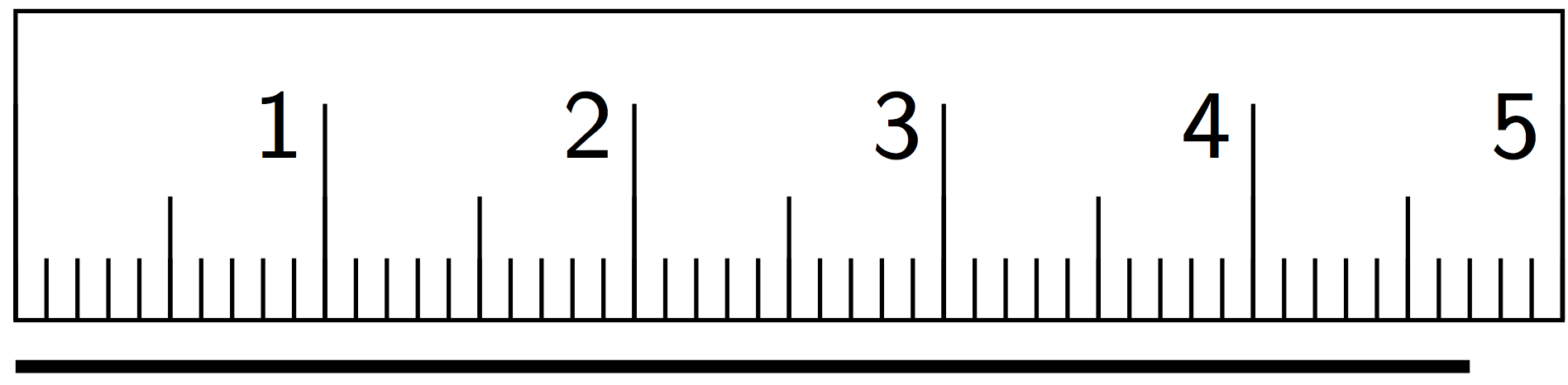
### 6.1: Measuring Segments

For each question, the unit is represented by the large tick marks with whole numbers.

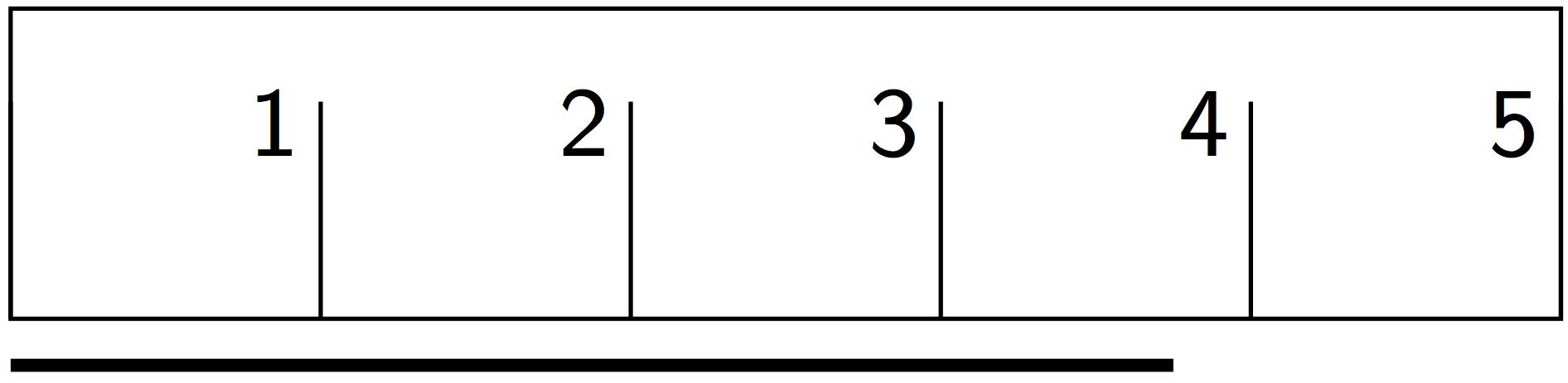
1. Find the length of this segment to the nearest of a unit.

* 

1. Find the length of this segment to the nearest 0.1 of a unit.

* 

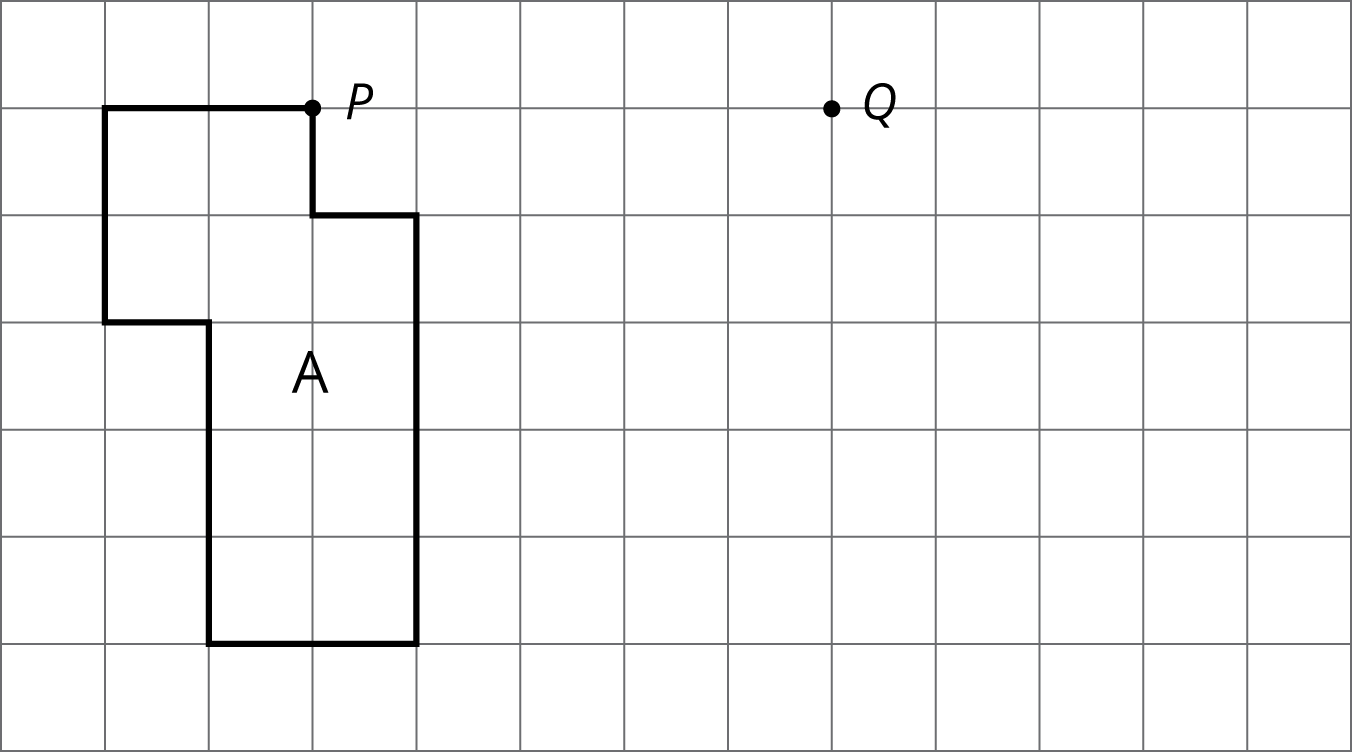
1. Estimate the length of this segment to the nearest of a unit.

* 

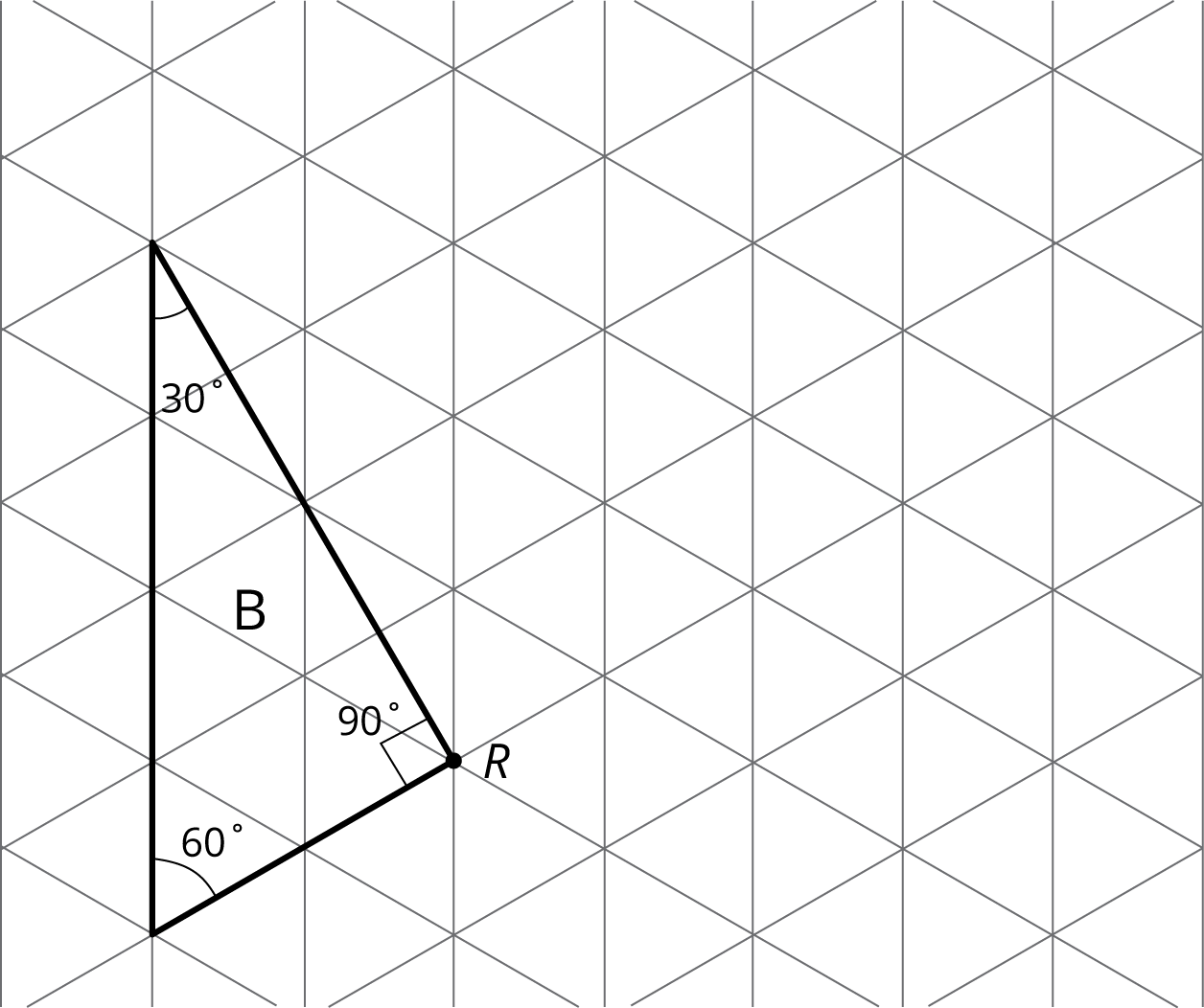
1. Estimate the length of the segment in the prior question to the nearest 0.1 of a unit.

### 6.2: Sides and Angles

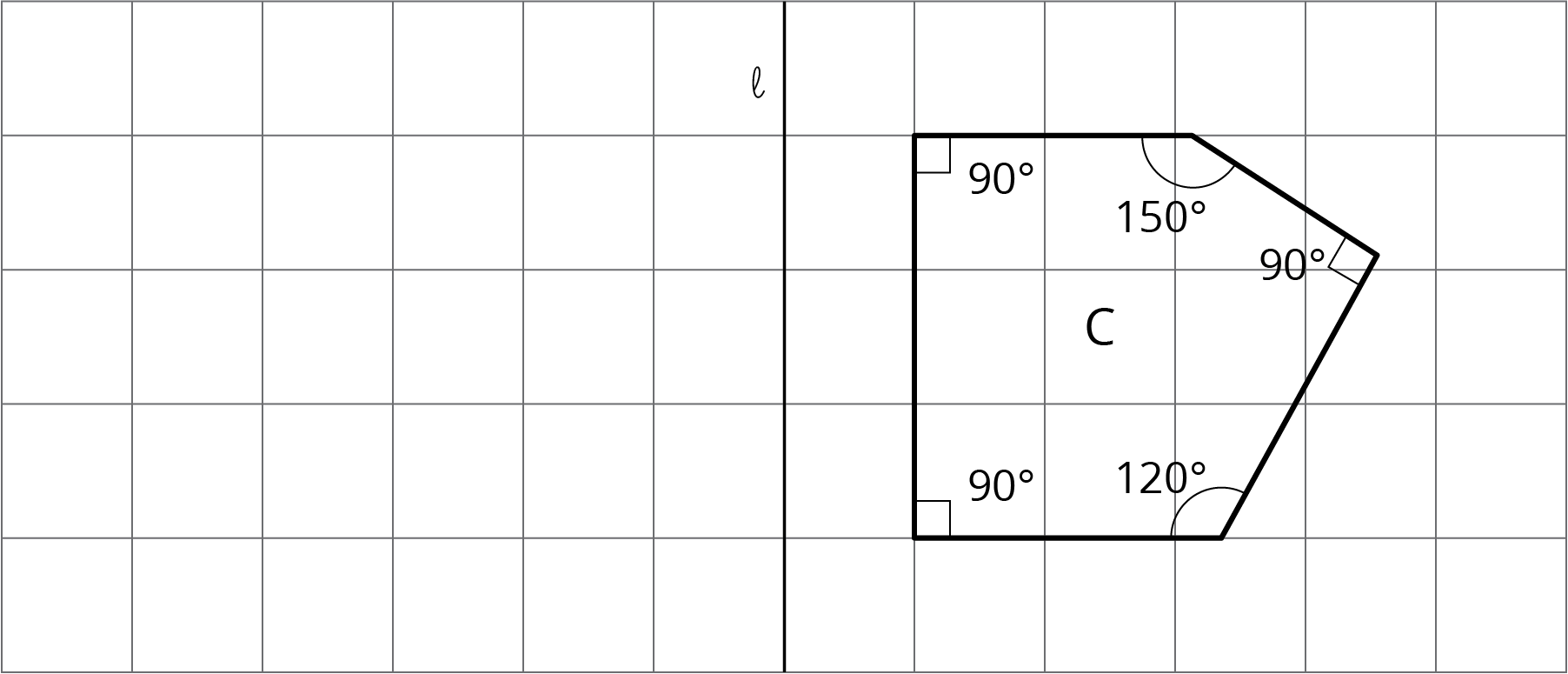
1. Translate Polygon so point goes to point . In the image, write the length of each side, in grid units, next to the side.

* 

1. Rotate Triangle 90 degrees clockwise using as the center of rotation. In the image, write the measure of each angle in its interior.

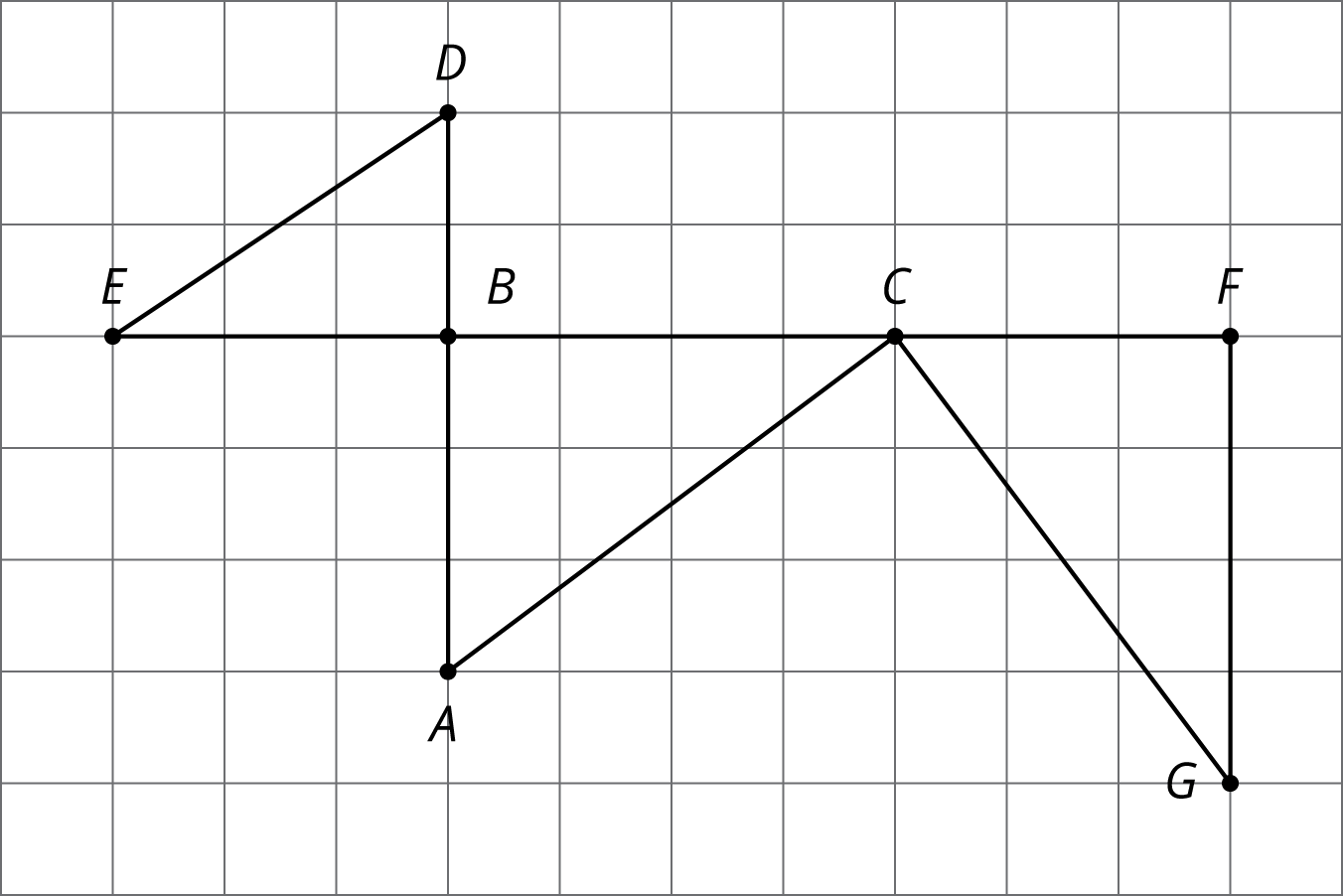
* 

1. Reflect Pentagon across line .
   1. In the image, write the length of each side, in grid units, next to the side. You may need to make your own ruler with tracing paper or a blank index card.
   2. In the image, write the measure of each angle in the interior.

* 

### 6.3: Which One?

Here is a grid showing triangle and two other triangles.

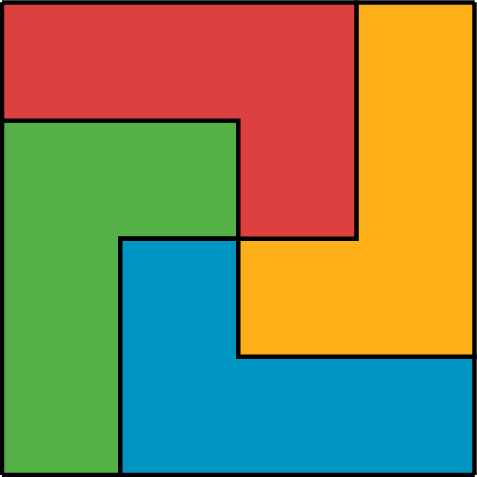


You can use a **rigid transformation** to take triangle to *one* of the other triangles.

1. Which one? Explain how you know.
2. Describe a rigid transformation that takes to the triangle you selected.

#### Are you ready for more?

A square is made up of an L-shaped region and three transformations of the region. If the perimeter of the square is 40 units, what is the perimeter of each L-shaped region?

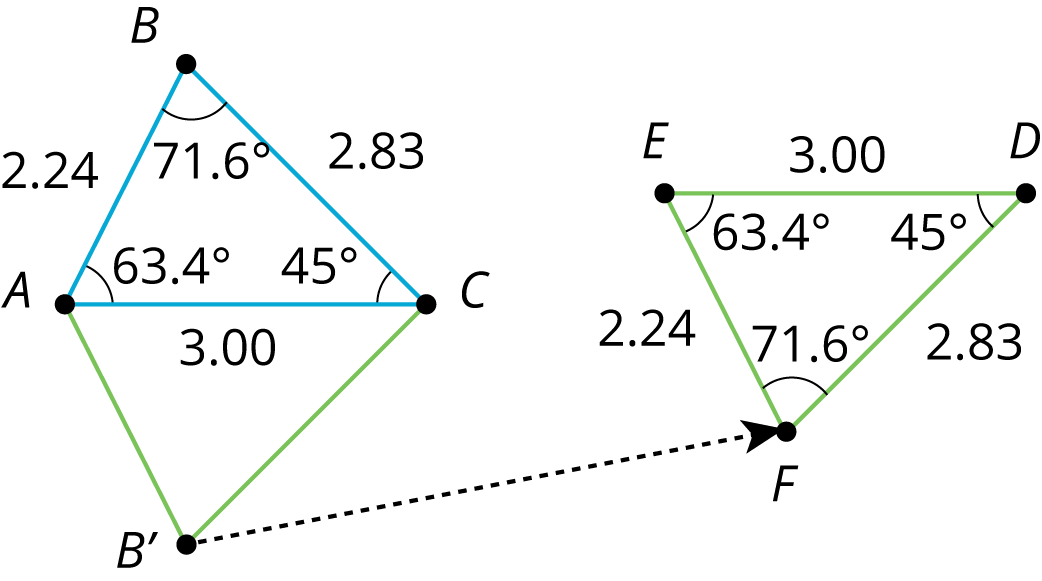


### Lesson 6 Summary

The transformations we’ve learned about so far, translations, rotations, reflections, and sequences of these motions, are all examples of **rigid transformations**. A rigid transformation is a move that doesn’t change measurements on any figure.

Earlier, we learned that a figure and its image have corresponding points. With a rigid transformation, figures like polygons also have **corresponding** sides and corresponding angles. These corresponding parts have the same measurements.

For example, triangle was made by reflecting triangle across a horizontal line, then translating. Corresponding sides have the same lengths, and corresponding angles have the same measures.



| measurements in triangle | corresponding measurements in image |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
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