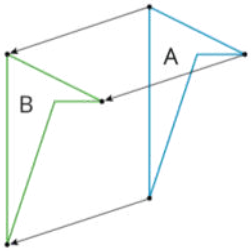
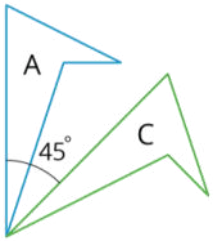
Unit 1 - Rigid Transformations and Congruence

Lesson 1 & 2 - Naming Moves in the plane

Label each move as a rotation, reflection, or translation, then describe the transformation shown.

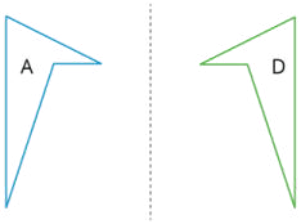


From A to B:



From A to C:

From C to A:

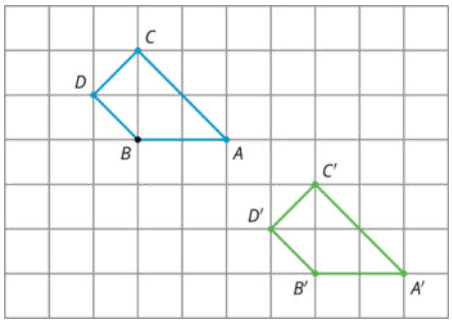


The line is:

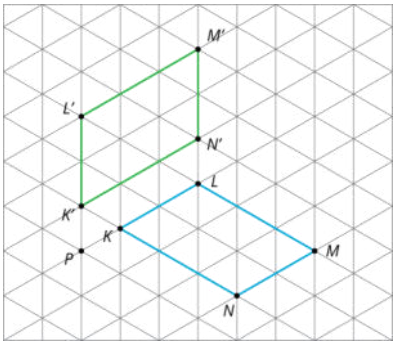
Define: **Image**

Corresponding points

Lesson 3 - Grid Moves



Quadrilateral $ABCD$ is translated 4 units _____ and 3 units _____ to the position of quadrilateral $A'B'C'D'$.

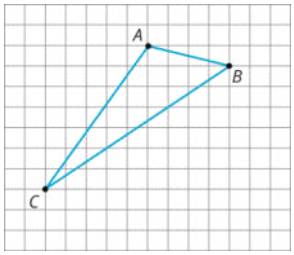


Here is quadrilateral $KLMN$ and its image $K'L'M'N'$ after a _____-degree counterclockwise rotation around _____.

Lesson 4 - Making Moves

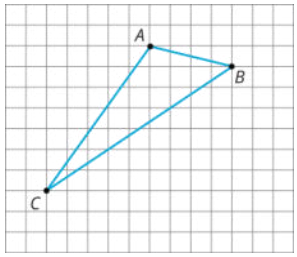
To describe a translation of triangle ABC, what information would you need to include?

What would you draw?



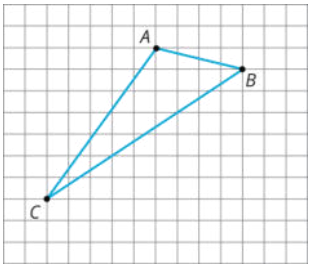
To describe a rotation of triangle ABC, what information would you need to include?

What would you draw?

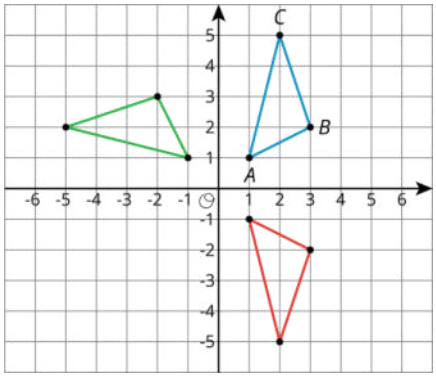


To describe a reflection of triangle ABC, what information would you need to include?

What would you draw?



Lesson 5 & 6 - Coordinate Moves



One of the triangles pictured is a rotation of triangle ABC and one of them is a reflection.

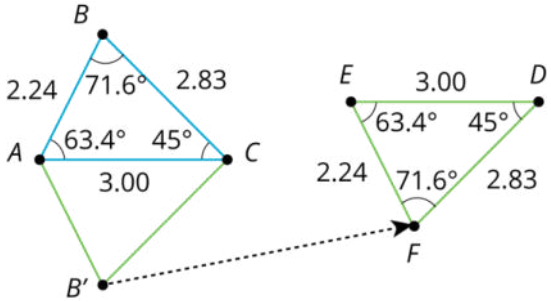
1. Identify the center of rotation, and label the rotated image PQR.
2. Identify the line of reflection, and label the reflected image XYZ.

Lesson 7 - No Bending or Stretching

What is a **rigid transformation**?

Triangle EFD was made by reflecting triangle ABC across _____, then translating _____.

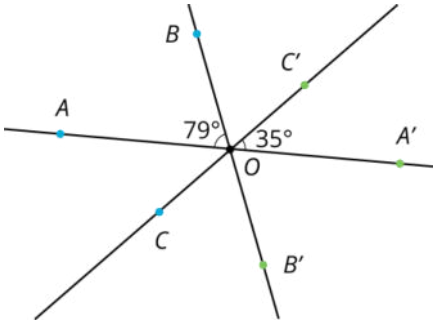
Name pairs of corresponding angles from triangles ABC and EFD.



Name pairs of corresponding sides from triangles ABC and EFD.

Lesson 8 & 9 - Rotating Lines

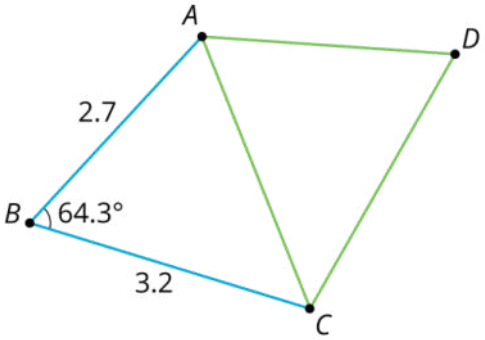
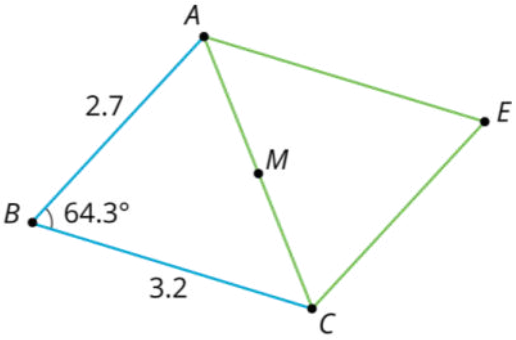
Vertical angles:



Points A', B', and C' are the images of 180-degree rotations of A, B, and C, respectively, around point O.

1. Name a segment whose length is the same as segment AO.
2. What is the measure of angle $A'OB'$?
3. What angle is vertical to angle BOC'? What is its measure?

Lesson 10 - Composing Figures

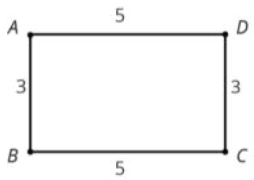
Triangle ABC was reflected across AC to form quadrilateral ABCD. Label as many side lengths and angles as you can.  What kind of quadrilateral is ABCD?	Triangle ABC was rotated 180 degrees about point M to form quadrilateral ABCE. Label as many side lengths and angles as you can.  What kind of quadrilateral is ABCE?

Lesson 11 - What is the same?

Two ways to show polygons are **congruent**:

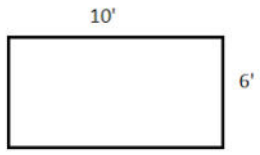
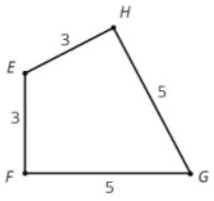
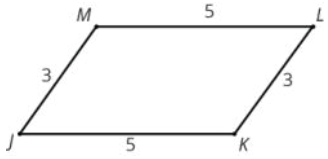
1.

2.



Lesson 12 - Congruent Polygons

Explain why each of the quadrilaterals shown below are **not** congruent to rectangle ABCD.

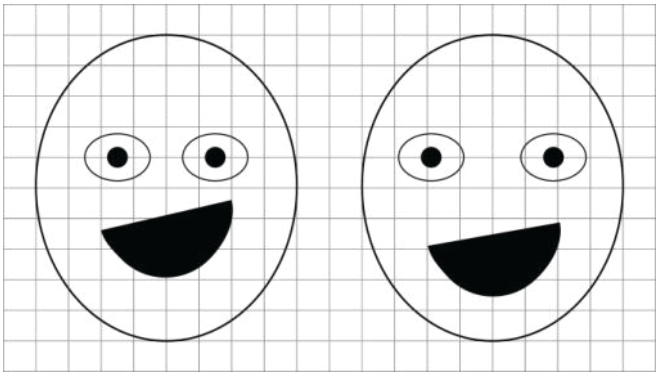
 	 	

Lesson 13 - Congruence

Are these two faces translations of each other?

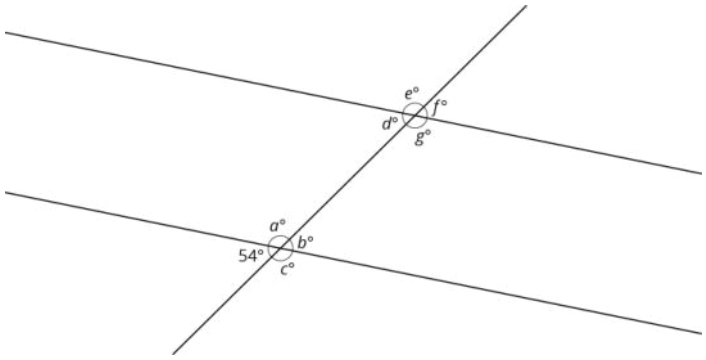
Are these two faces congruent?

Are the eyes in each of the faces congruent?



Lesson 14 - Alternate Interior Angles

The diagram shows two parallel lines cut by a transversal. One angle measure is shown.



Find the values of a, b, c, d, e, f, and g.

Give an example of a pair of **alternate interior angles**. What transformation could be used to show that they are congruent?

Lesson 15 - Adding Angles in a Triangle

A straight angle is:

If a straight angle is split into three separate angles, they must add up to:

The sum of angle measures in a triangle is:

In triangle XYZ, the measure of angle Y is 50 degrees.

1. Give possible values for the measures of angles X and Z if XYZ is an acute triangle.

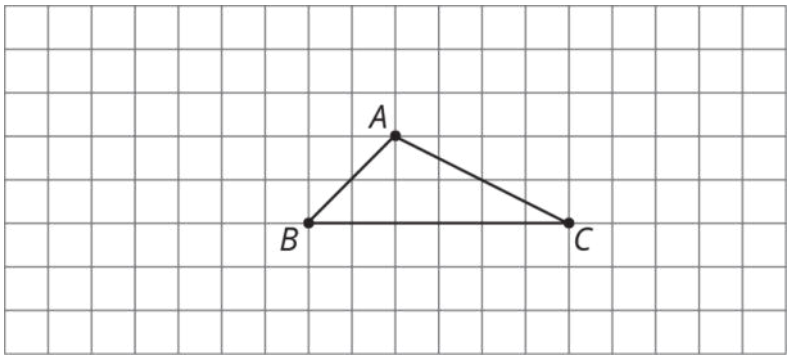
2. Give possible values for the measures of angles X and Z if XYZ is an obtuse triangle.

3. Give possible values for the measures of angles X and Z if XYZ is a right triangle.

4. If $XYZ$is an isosceles triangle, draw it two different ways.

Lesson 16 - Parallel Lines & Triangle Angles

Rotate triangle ABC 180° around the midpoint of side AC. Label the new vertex D.
Rotate triangle ABC 180° around the midpoint of side AB. Label the new vertex E.



1. Look at angles EAB, BAC, and CAD. Without measuring, write what you think is the sum of the measures of these angles. Explain or show your reasoning.

2. Is the measure of angle EAB equal to the measure of any angle in triangle ABC? If so, which one? If not, how do you know?

3. Is the measure of angle CAD equal to the measure of any angle in triangle ABC? If so, which one? If not, how do you know?

4. What is the sum of the measures of angles ABC, BAC, and ACB?