

Name: _____ Date: _____
 Construction of the Line of Reflection Unit 6, Lesson 2

Classwork
 Reflections

Opening exercise: Look at the diagram below, describe what is happening?

Your Description:

ΔABC is reflected over DE and maps onto $\Delta A'B'C'$.

Let's practice a perpendicular bisector on \overline{AB} .

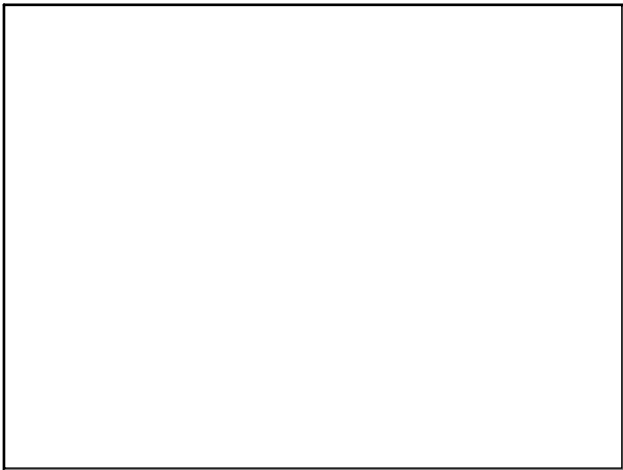
Constructing a Line of Reflection

a. What do you notice about these perpendicular bisectors?

b. Label the perpendicular bisector as \overline{DE} .

c. Label the point at which $\overline{AA'}$ intersects \overline{DE} as point O . What is true about AO and $A'O$? How do you know this is true?

In Conclusion...
 The line of reflection between a figure and its reflected image is also the perpendicular bisector the segments connecting the corresponding points on the figure.



Example 1 - Now you try!

a. Construct the segment that represents the line of reflection for quadrilateral $ABCD$ and its image $A'B'C'D'$.

b. What is true about each point on $ABCD$ and its corresponding point on $A'B'C'D'$ with respect to the line of reflection?

Dec 11-10:36 AM

More Practice

Construct the line of reflection across which each image below was reflected.

2.

3.

We now know in order to construct a line of reflection, we must create the perpendicular bisectors of the segments connecting the corresponding points of the figure and its reflected image.

Next, we are going to explore how to reflect a figure over the line of reflection.

Think about all of the constructions you have done in class. Can you think of a construction we might use in order to reflect a figure over a line?

Let's practice constructing a perpendicular line drawn to a point off of the line by creating a perpendicular bisector of \overline{AB} through point P.

6

Steps:

- 1) Place the bullseye (point) of your compass on vertex A.
- 2) Make the radius of your compass wide enough so it crosses \overline{DE} two times and create an arc.
- 3) Keep the same radius
- 4) Place the bullseye (point) of your compass on the intersection points and create an arc at each.
- 5) Label the point of intersection of the arcs A' .
- 6) Repeat steps 1-4 for each vertex and connect the points using a straightedge.

7

Critical Thinking...
When you found the line of reflection earlier, you did this by constructing perpendicular bisectors of segments joining two corresponding vertices. How does the reflection you constructed above relate to your earlier efforts at finding the line of reflection itself?

Why did the construction above work?

Example 5
Now try a slightly more complex figure. Reflect $ABCD$ across \overline{EF} .

8

In Conclusion...
A reflection carries segments onto segments of equal length.
A reflection carries angles onto angles of equal measure.

Problem Set
Construct the line of reflection for each pair of figures below.

- 1.
- 2.
- 3.

9

4. Draw a line l through vertex C so that it intersects the triangle at more than just the vertex. Construct the reflection across l .

10

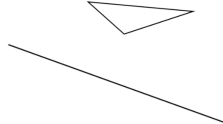
Name _____ Date _____
CC Geometry Homework: Reflections Unit 6: Lesson 2

Exit Ticket

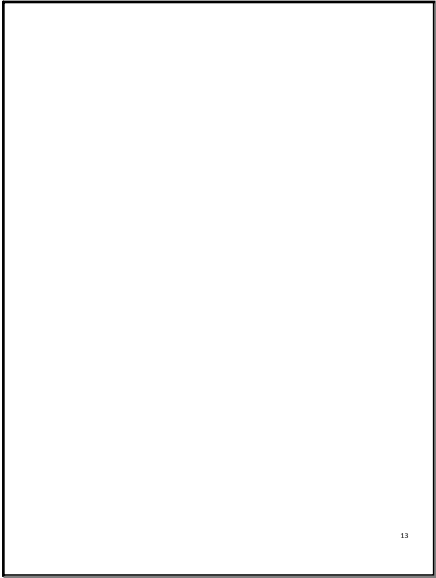
1. Construct the line of reflection for the figures.

11

2. Reflect the given pre-image across the line of reflection provided.



12



13