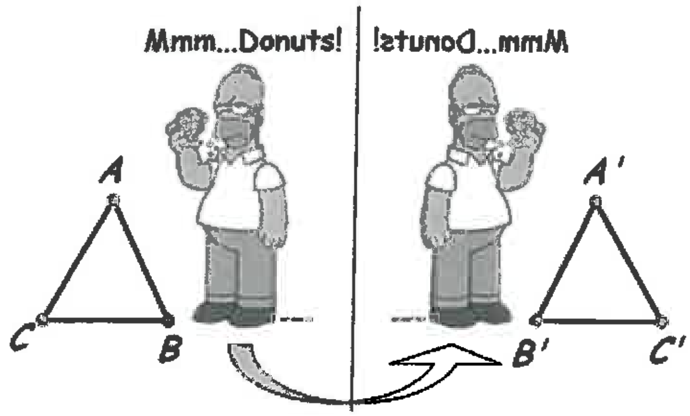
Geometry R – Mr. Bo
Unit 2B – Day 2 Notes

Name notes.
Date__________________

Reflections & Symmetry

Line Reflection – moving a 2D figure such that each point appears at an equal distance on the opposite side of a given line.



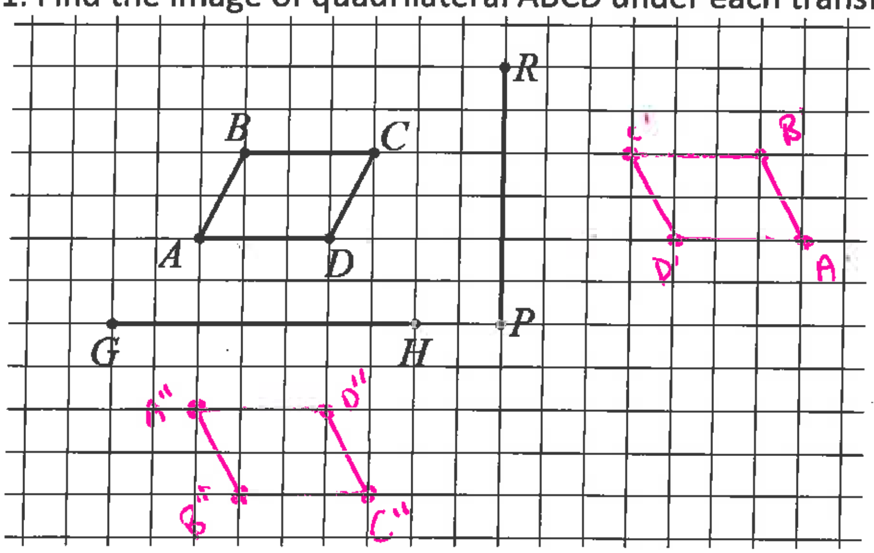
Orientation – The order in which points are arranged relative to each other in a 2D figure.

A line reflection will reverse the orientation of a figure.

ie:

pre-image orientation: $\triangle ABC$
Image orientation: $\triangle A'C'B'$
order of Letters is changed.

1. Find the image of quadrilateral ABCD under each transformation:



a. $r_{\overline{RP}}$

reflect over line RP

b. $r_{\overline{GH}}$

1c. Is reflection a Rigid Motion? Justify your response by providing evidence to support your answer. yes, Distance and angle measure are preserved.

$BC = 3$
$B'C' = 3$
$\overline{BC} \cong \overline{B'C'}$

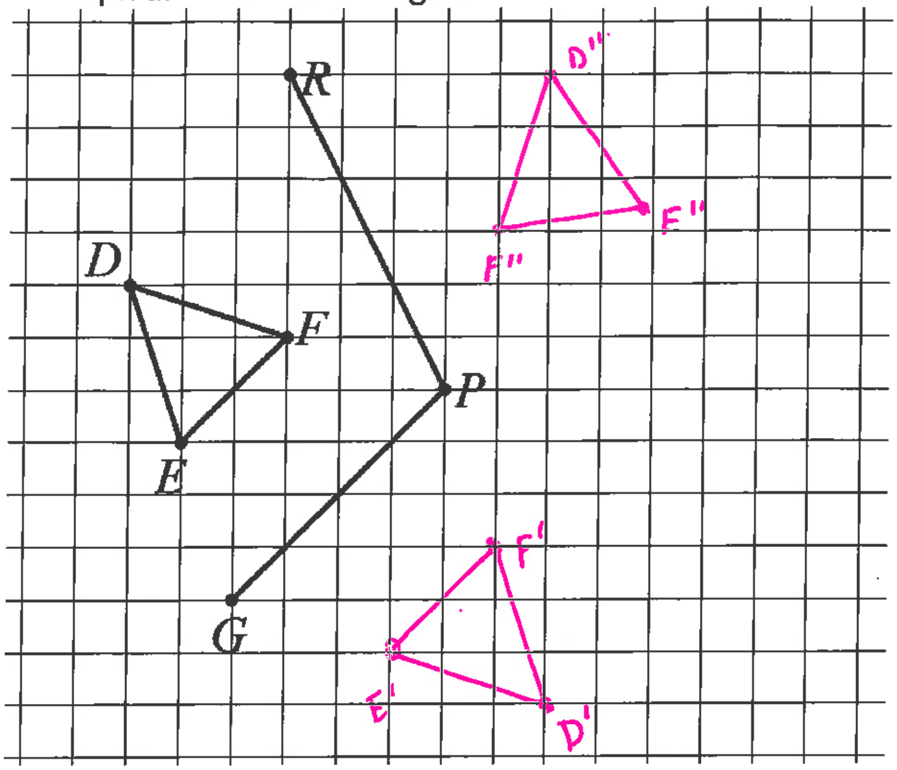
using tracing paper we see $\angle A \cong \angle A'$.

1d. Is parallelism preserved under reflection? Justify your response.

yes. $\overline{BC} \parallel \overline{AD}$ and $\overline{B'C'} \parallel \overline{A'D'}$.

Lines $\overline{BC}$ and $\overline{AD}$ stayed $\parallel$ after the reflection.

2. Graph and label the image of ΔDEF under each transformation:



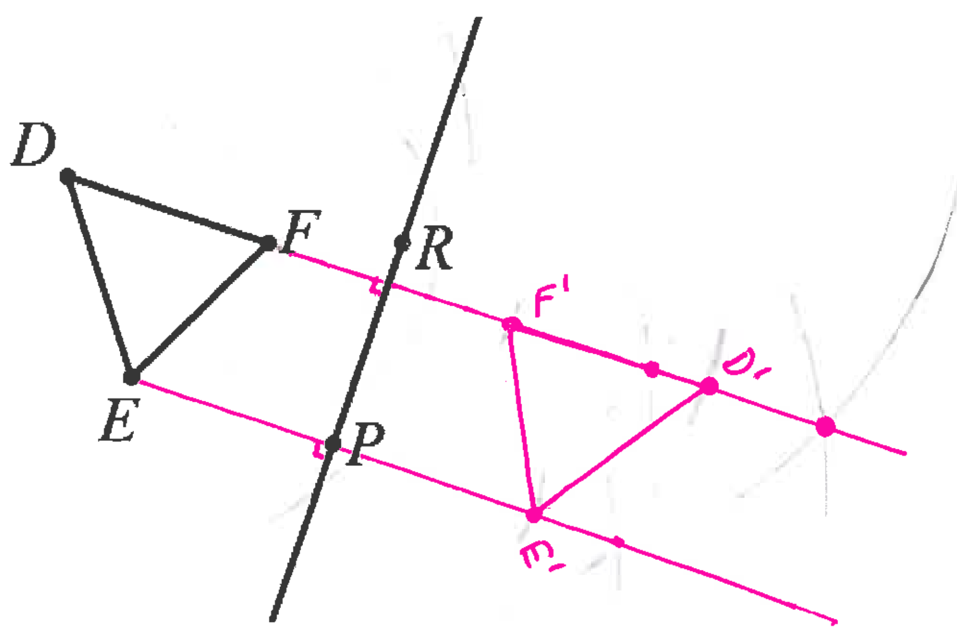
a. Reflect ΔDEF over $\overline{GP}$.

b. Reflect ΔDEF over $\overline{RP}$.

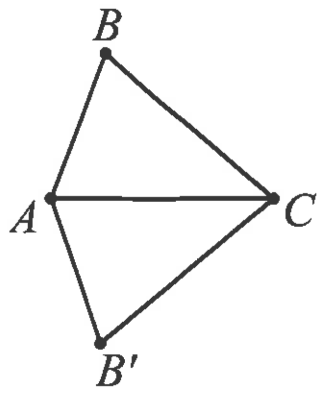
2b. Why is it much more difficult to reflect ΔDEF over $\overline{RP}$ than over $\overline{GP}$? Explain.

the slope of $\overline{RP}$ is not $\frac{1}{1}$, so we can't count across the Diagonals of the grid boxes.

3. Use a compass and straight edge to reflect ΔDEF over $\overline{RP}$.



4.

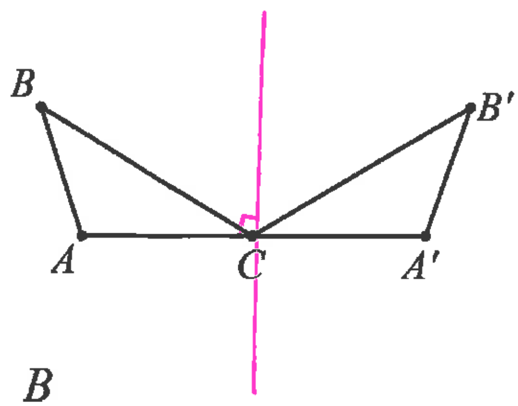


a. Describe precisely the reflection that would map ΔABC onto $\Delta AB'C$.

reflect ΔABC over $\overline{AC}$.

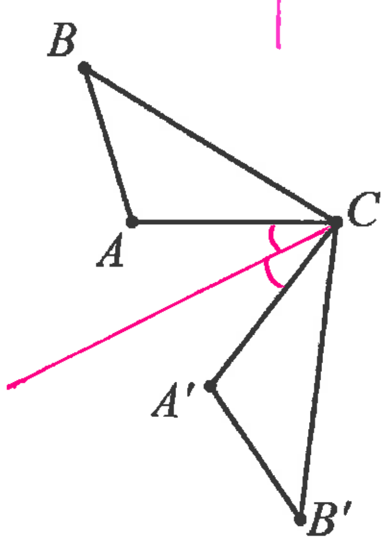
or

$r_{\overline{AC}}$



b. Describe precisely the reflection that would map ΔABC onto $\Delta A'B'C$.

reflect ΔABC over the $\perp$ bisector of $\overline{AA'}$.



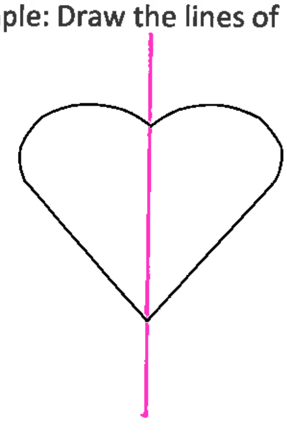
c. Describe precisely the reflection that would map ΔABC onto $\Delta A'B'C$.

reflect ΔABC over the angle bisector of $\angle ACA'$.

Line Symmetry: Having a line of reflection such that a shape can be folded onto itself.

Example: Draw the lines of symmetry for each figure.

1.



2.