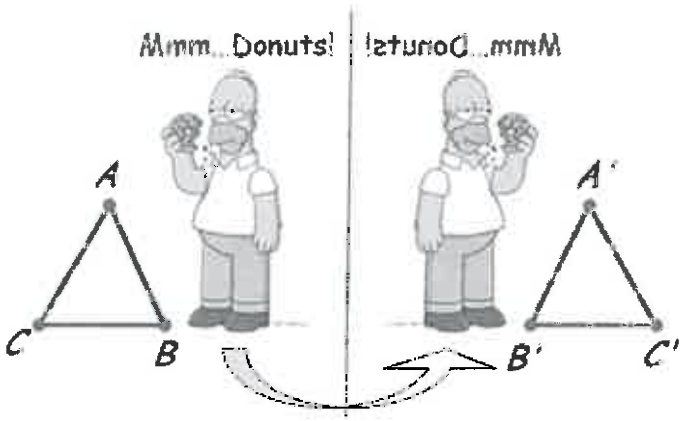
Geometry R – Mrs. Cowen
Unit 2B – Day 2 Notes

Name_____
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.

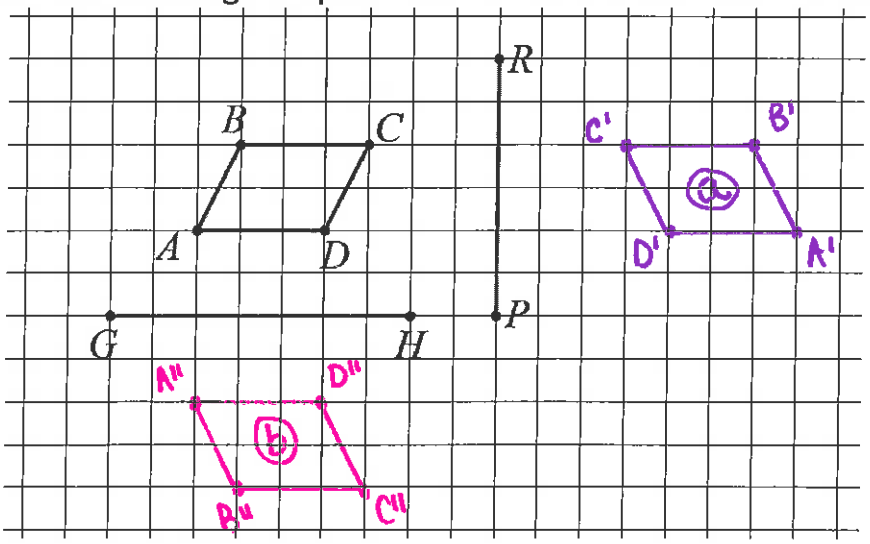


Orientation – The order in which points are arranged relative to each other in a 2D figure.

A line reflection will reverse the orientation of a figure.

ex: pre-image orientation : $\triangle ABC$ } order of letters
image orientation : $\triangle A'C'B'$ } changes.

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



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

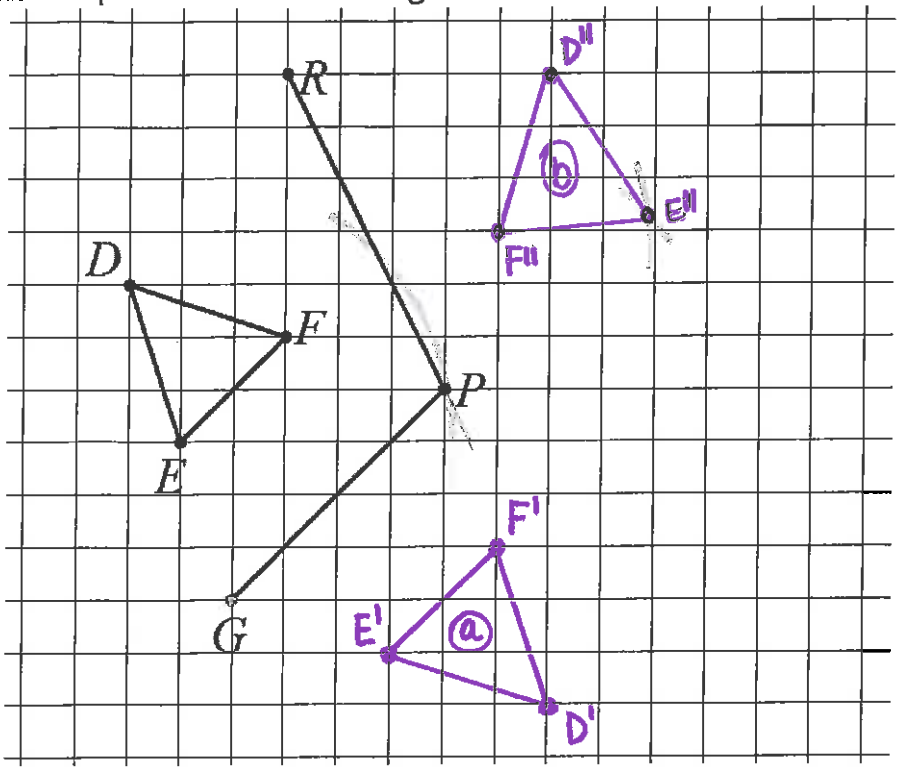
b. $r_{\overline{GH}}$

1c. Is reflection a Rigid Motion? Justify your response by providing evidence to support your answer. yes a reflection is a rigid motion. Both length and angle measure are preserved.

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

yes parallelism is preserved under a reflection. $\overline{AD} \parallel \overline{BC}$ and $\overline{A''D''} \parallel \overline{B''C''}$.

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



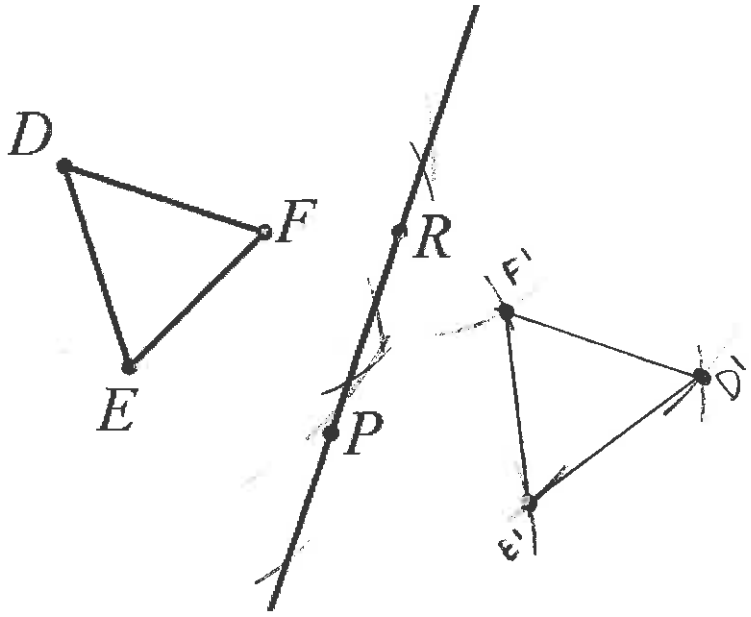
a. Reflect ΔDEF over $\overline{GP}$.

b. Reflect ΔDEF over $\overline{RP}$.

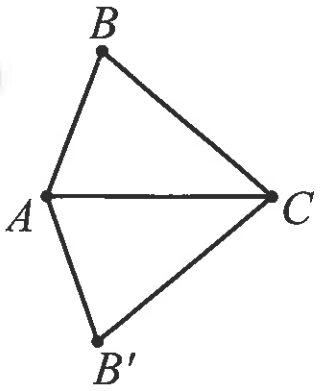
2b. Why is it much more difficult to reflect ΔDEF over $\overline{RP}$ than over $\overline{GP}$? Explain.

The points in $\Delta D''E''F''$ don't all hit the axis nice. The slope of $\overline{RP}$ is not $\pm$ so we can't count across the diagonals of the grid boxes

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



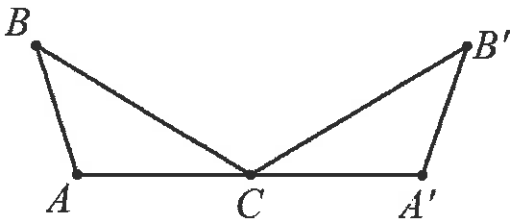
4.



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

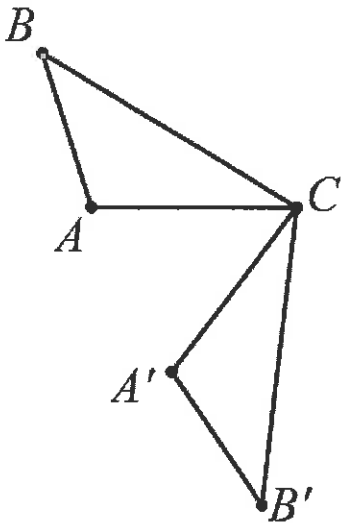
A reflection of ΔABC in the line $\overline{AC}$

$r_{\overline{AC}}$



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

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



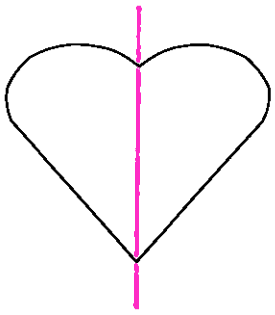
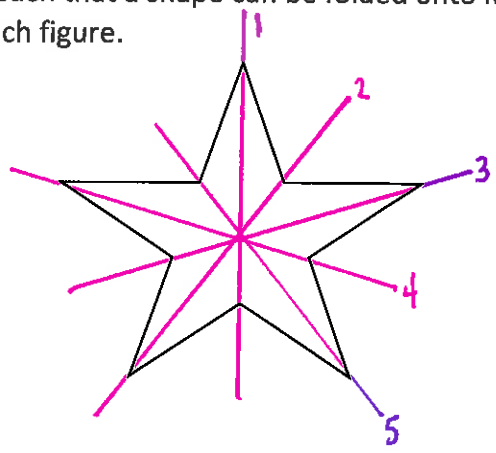
c. Describe precisely the reflection that would map ΔABC onto $\Delta A'B'C$.

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.