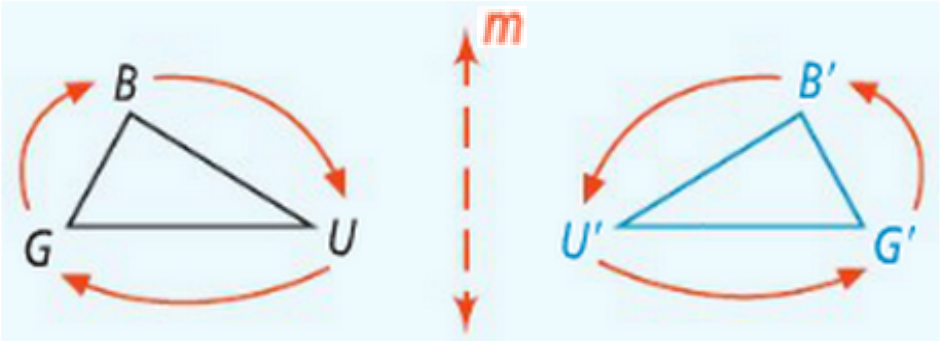
Geometry

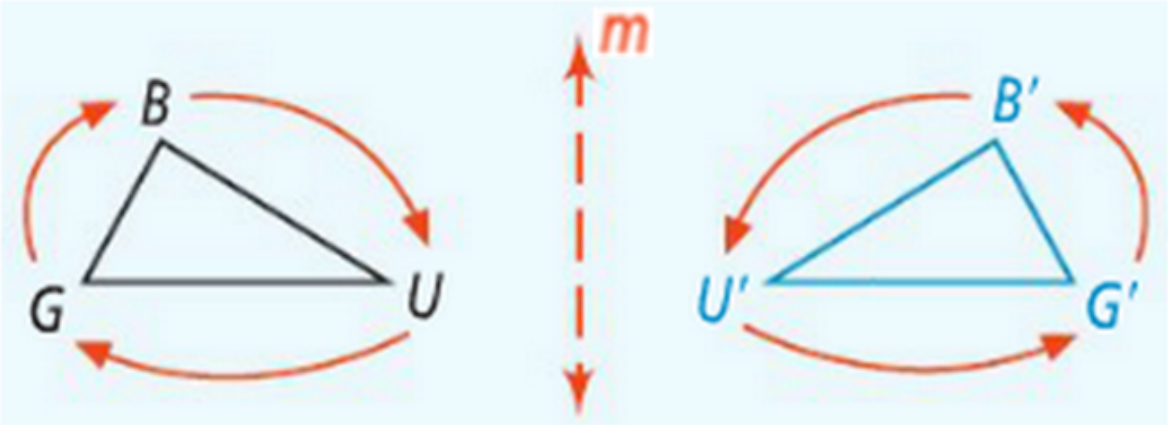
Chapter 9

Section 9-2

A reflection of a shape is a mirror image of a shape using a line as the "mirror".



Line *m* is called the line of reflection.



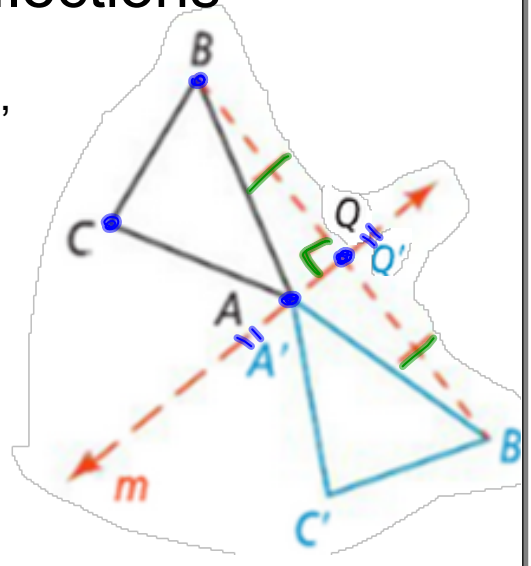
Example of a reflection rule:

$R_m(\triangle BUG) = \triangle B'U'G'$

Properties of reflections

- If a point is on the line of reflection, then its image is itself
  - > A and A' are the same
  - > Q and Q' are the same

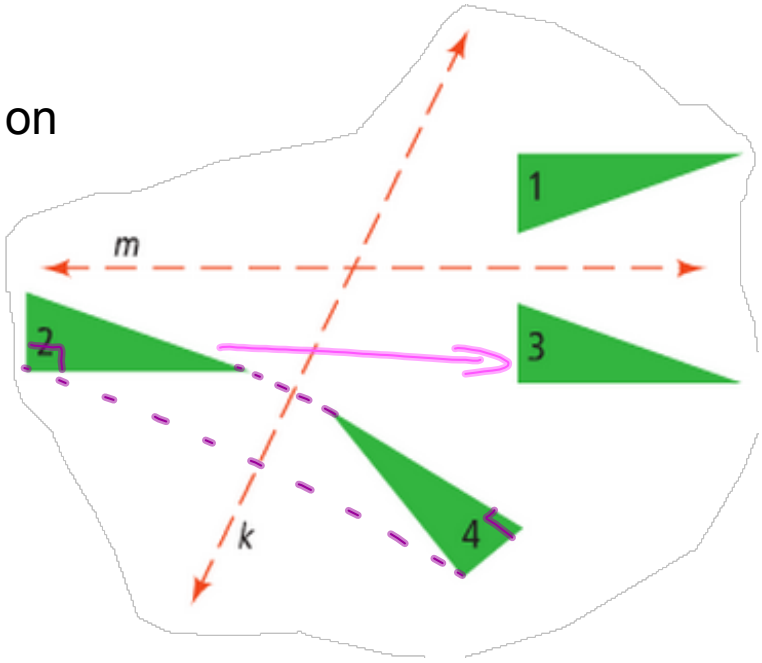
- If a point is not on the line of reflection, then the preimage and image are the same distance from the line
  - > $\overline{BQ}$ is the same length as $\overline{B'Q}$



Make a conjecture of reflection rules based on the diagram.

$R_m(\triangle 1)$

$R_m(\triangle 3)$



Use the following Points:
A: (4, 0) , B: (5, -3) , F: (-3, -1) , G: (9, 10)

What is $R_{x\text{-axis}}(A)$? = A

(4, 0)

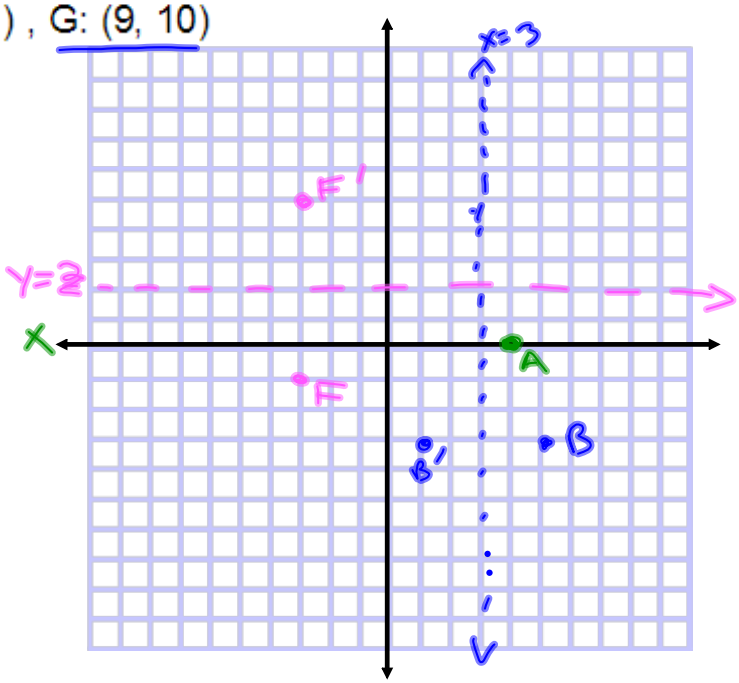
What is $R_{y=2}(F)$?

(-3, 5)

What is $R_{x=3}(B)$?

(1, -3)

What is $R_{y=x}(G)$?



Use the following Points:
A: (4, 0) , B: (5, -3) , F: (-3, -1) , G: (9, 10)

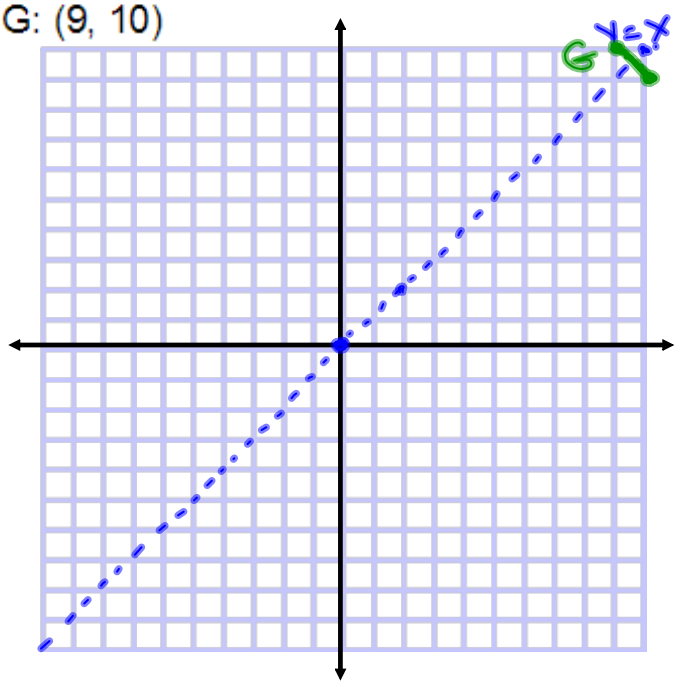
What is $R_{x\text{-axis}}(A)$?

What is $R_{y=2}(F)$?

What is $R_{x=3}(B)$?

What is $R_{y=x}(G)$?

(10, 9)

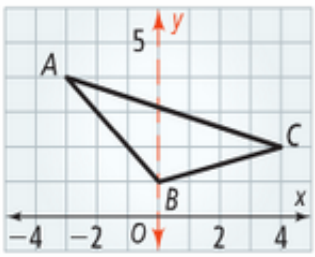


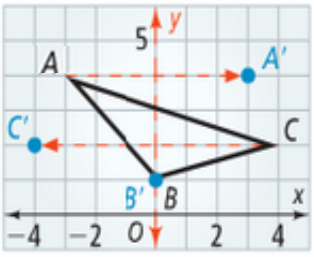
Reflecting a shape across a line

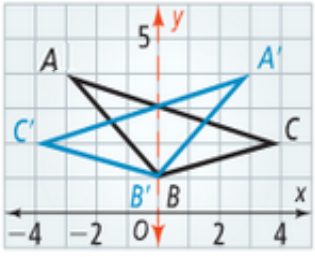
Step 1
Graph $\triangle ABC$. Show the y-axis as the dashed line of reflection.

Step 2
Find A', B', and C'. B' is in the same position as B because B is on the line of reflection. Locate A' and C' so that the y-axis is the perpendicular bisector of $\overline{AA'}$ and $\overline{CC'}$.

Step 3
Draw $\triangle A'B'C'$.

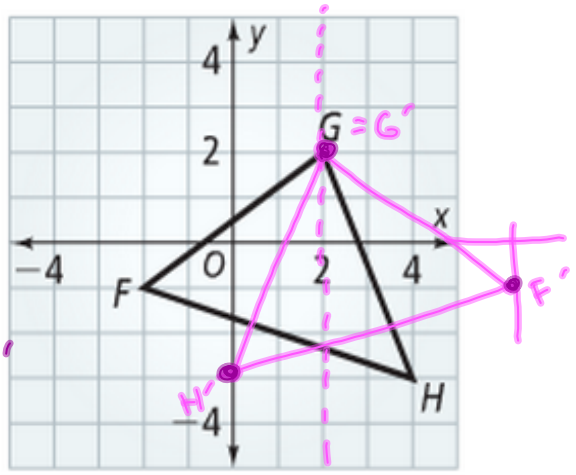






Use the graph of $\triangle FGH$.

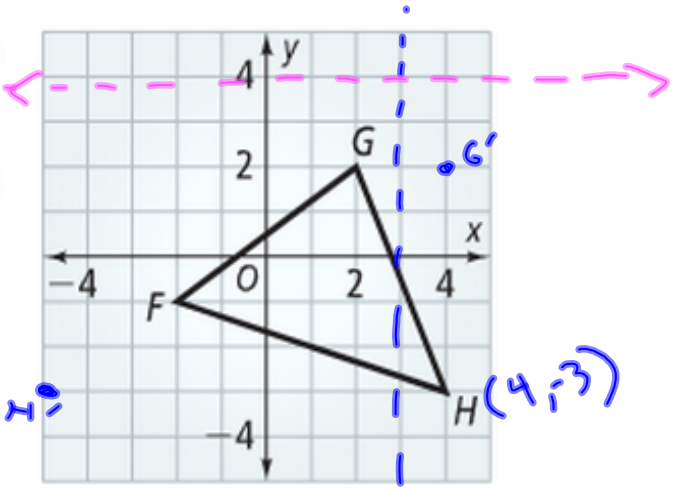
1. What are the coordinates of $R_{y\text{-axis}}(F)$? (2, -1)
2. What are the coordinates of $R_{x\text{-axis}}(\overline{HG})$? (2, -2) (4, 3)
3. Graph and label $R_{x=2}(\triangle FGH)$. = $\triangle F'G'H'$



Use the graph of $\triangle FGH$.

1. What are the coordinates of $R_{y\text{-axis}}(H)$? (-4, 3)
2. What are the coordinates of $R_{x=3}(G)$? (4, 2)
3. Graph and label $R_{y=4}(\triangle FGH)$.

off graph



Homework

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