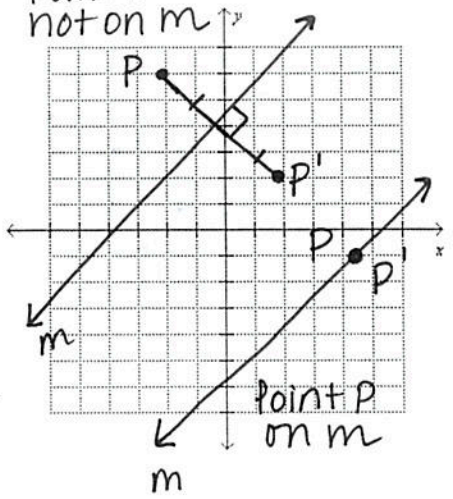
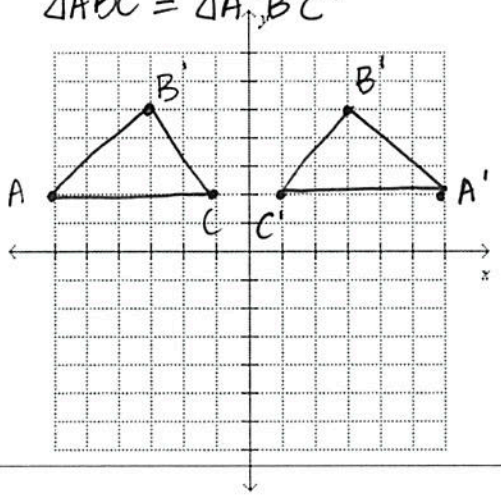
Key

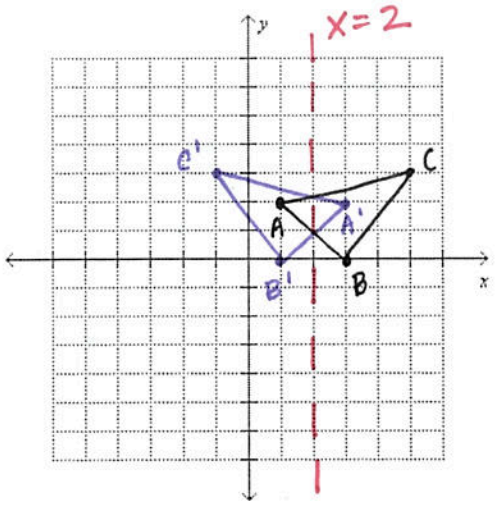
Section Summary: 9.3 Perform Reflections

Term	Definition	Example
reflection	A reflection is a transformation that uses a line like a mirror to reflect an image.	Point P not on m 
line of reflection	A line of reflection is the mirror line to reflect about. A reflection in a line m maps every point P in the plane to a point P', so that for each point one of the following is true: • If P is not on m, then m is the perpendicular bisector of PP' • If P is on m, then P = P'	
Theorem 9.2 Reflection Theorem	A reflection is an isometry. $\triangle ABC \cong \triangle A'B'C'$ 	Case 1: reflect about x-axis Case 2: reflect about y-axis Case 3: reflect about $y = x$ Case 4: reflect about $y = -x$

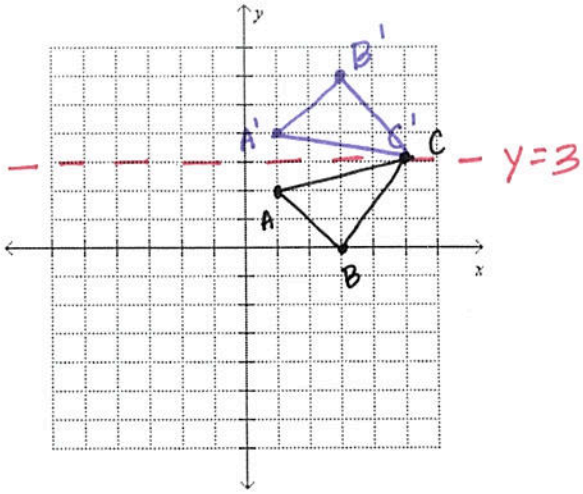
Coordinate Rules for Reflections
1. If (a,b) is reflected in the x-axis, its image is the point (a,-b).
2. If (a,b) is reflected in the y-axis, its image is the point (-a,b).
3. If (a,b) is reflected in the line $y = x$, its image is the point (b,a).
4. If (a,b) is reflected in the line $y = -x$, its image is the point (-b,-a).

1. The vertices of ΔABC are (1,2), B(3,0), and C(5,3). Graph the reflection of ΔABC as described.

a) In the line x = 2.

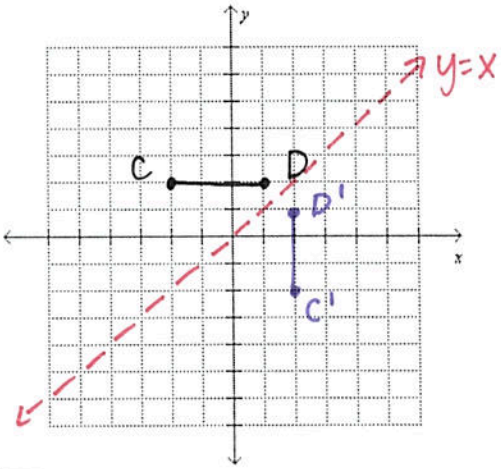


b) In the line y = 3



2. The endpoints of $\overline{CD}$ are C(-2,2) and D(1,2). Reflect the segment in the line y = x. Graph the segment and its image.

* C' = (2, -2)
D' = (2, 1)



3. Reflect $\overline{CD}$ from example 2 in the line y = -x. Graph $\overline{CD}$ and its image.

C' (-2, 2)
* D' (-2, -1)