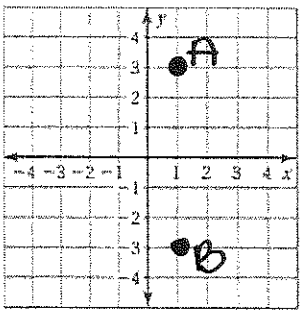
Name: _____ Hour: _____

6.5 Extension: Reflecting Points in the Coordinate Plane Notes

You can reflect a point in the x-axis, in the y-axis, or in both axes.

Plot the point $(1, 3)$ in the coordinate plane. Label it A.

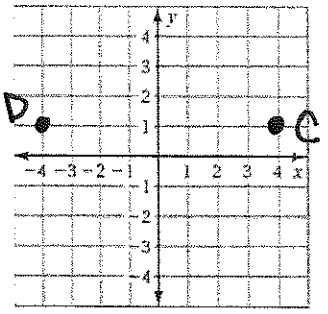
Plot the point $(1, -3)$ in the coordinate plane. Label it B.



Points A and B are mirror images of each other in the x-axis because the x-coordinates are the same and the y-coordinates are opposites. So, the points are 3 units from the x-axis in opposite directions. The points represent a reflection in the x-axis.

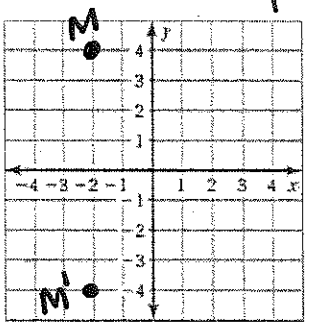
Plot the point $(4, 1)$ in the coordinate plane. Label it C.

Plot the point $(-4, 1)$ in the coordinate plane. Label it D.

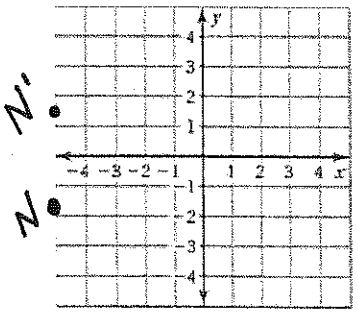


Points C and D are mirror images of each other in the y-axis because the y-coordinates are the same and the x-coordinates are opposites. So, the points are 4 units from the y-axis in opposite directions. The points represent a reflection in the y-axis.

To reflect a point in the x-axis, use the same x-coordinate and take the opposite of the y-coordinate.



Plot the point $M(-2, 4)$.
Reflect the point over the x-axis.
Label it M'.
Write the ordered pair: M' (-2,-4)



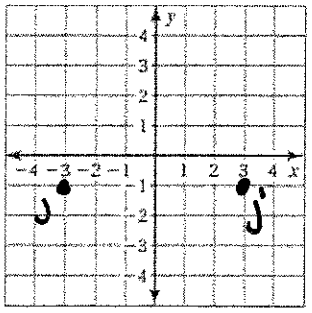
Plot the point $N(-5, -1.5)$.
Reflect the point over the x-axis.
Label it N'.
Write the ordered pair: N' (-5,1.5)

Reflect $P(3, 2)$ over the x-axis. Coordinates of the reflected point: (3,-2)

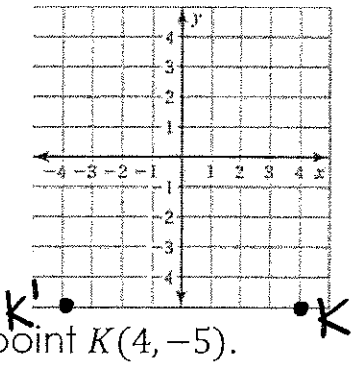
Reflect $Q(-4, 4)$ over the x-axis. Coordinates of the reflected point: (-4,-4)

Name: _____ Hour: _____

To reflect a point in the y-axis, use the same y-coordinate and take the opposite of the x-coordinate.



Plot the point $J(-3,-1)$.
Reflect the point over the y-axis.
Label it J'.
Write the ordered pair: J' (3,-1)



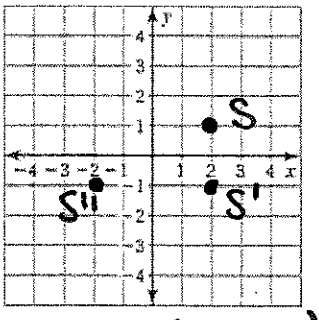
Plot the point $K(4,-5)$.
Reflect the point over the y-axis.
Label it K'.
Write the ordered pair: K' (-4,-5)

Reflect $L(-8,0)$ over the y-axis. Coordinates of the reflected point: (8,0)

Reflect $H(2.5,4.5)$ over the y-axis. Coordinates of the reflected point: (-2.5,4.5)

You can also reflect points over both axes by breaking it down in steps and following the same rules.

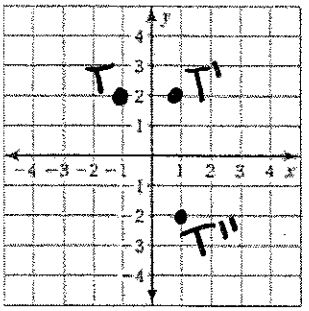
Reflect $S(2,1)$ over the x-axis followed by the y-axis.



Step 1: Plot the point.
Step 2: Reflect S over the x-axis. S': (2,-1)
Step 3: Reflect S' over the y-axis. S'': (-2,-1)

So, $S(2,1)$ reflected over the x-axis followed by the y-axis is S'' (-2,-1).

Reflect $T(-1,2)$ over the y-axis followed by the x-axis.



Step 1: Plot the point.
Step 2: Reflect T over the y-axis. T': (1,2)
Step 3: Reflect T' over the x-axis. T'': (1,-2)

So, $T(-1,2)$ reflected over the y-axis followed by the x-axis is T'' (1,-2).