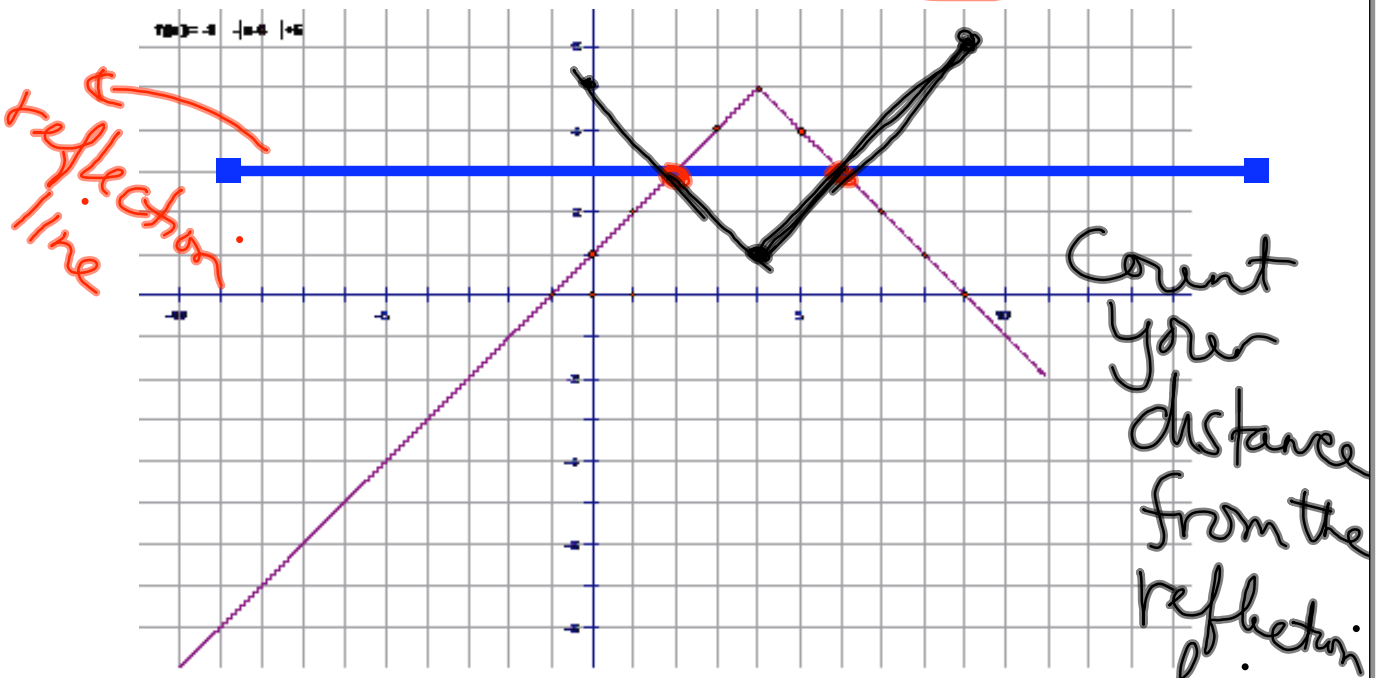
Transformations Using Lines Parallel to the X and Y Axis

Invariant Points: *Points that do not move or change position as a result of a transformation.* These points lie on our reflection line.

Draw the graph of the vertical reflection in the line y = 3.

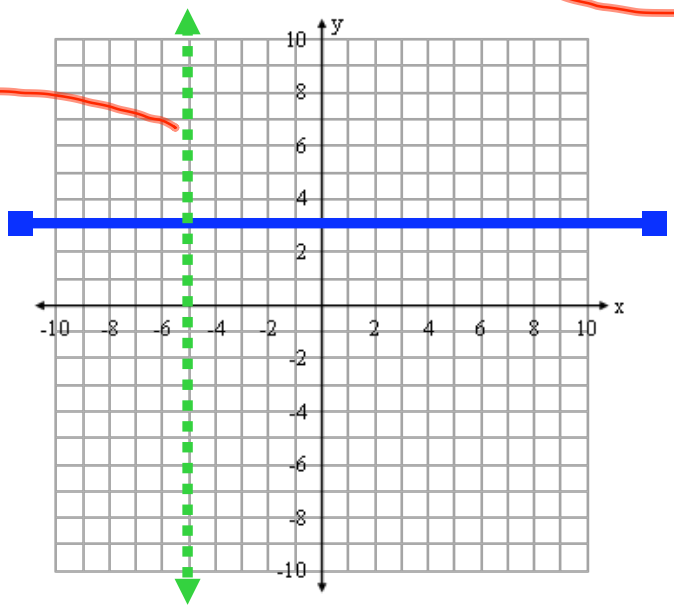


Horizontal lines or Vertical lines

$y =$

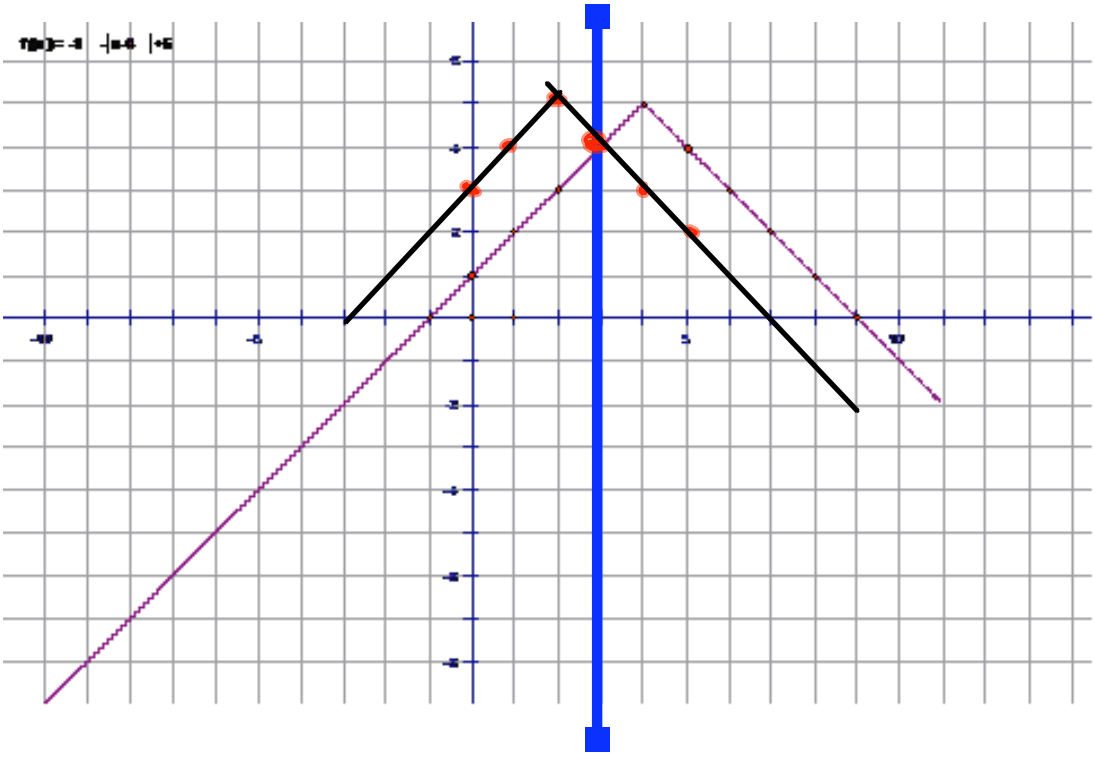
$x =$

$x = -5$

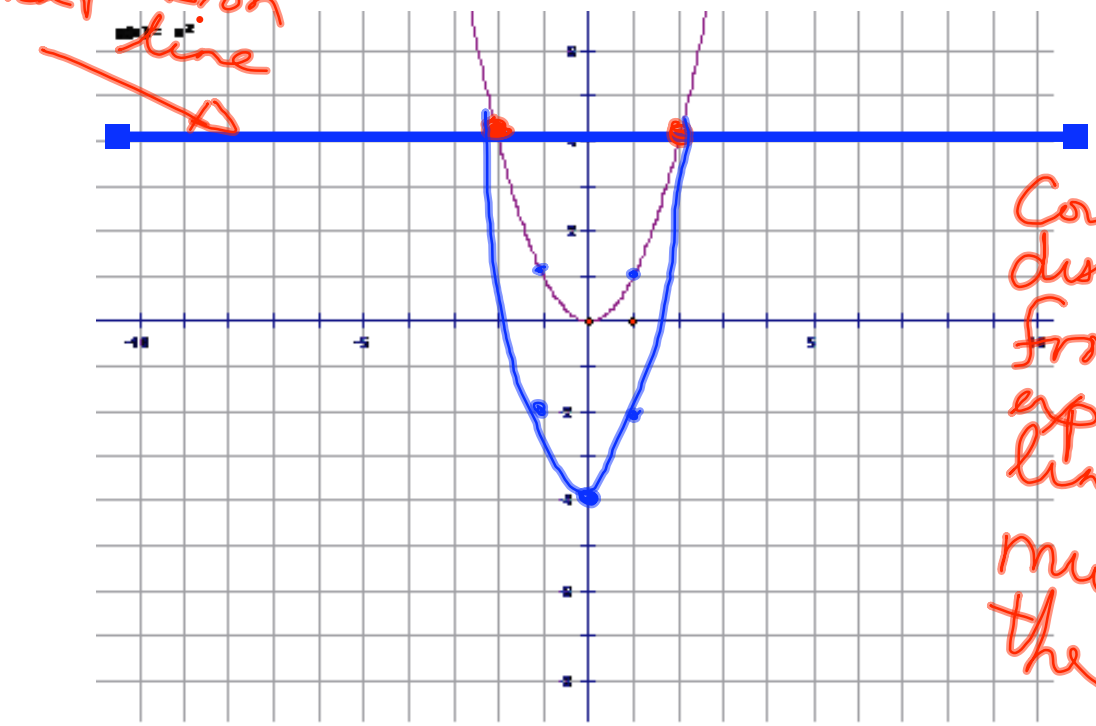


$y = 3$

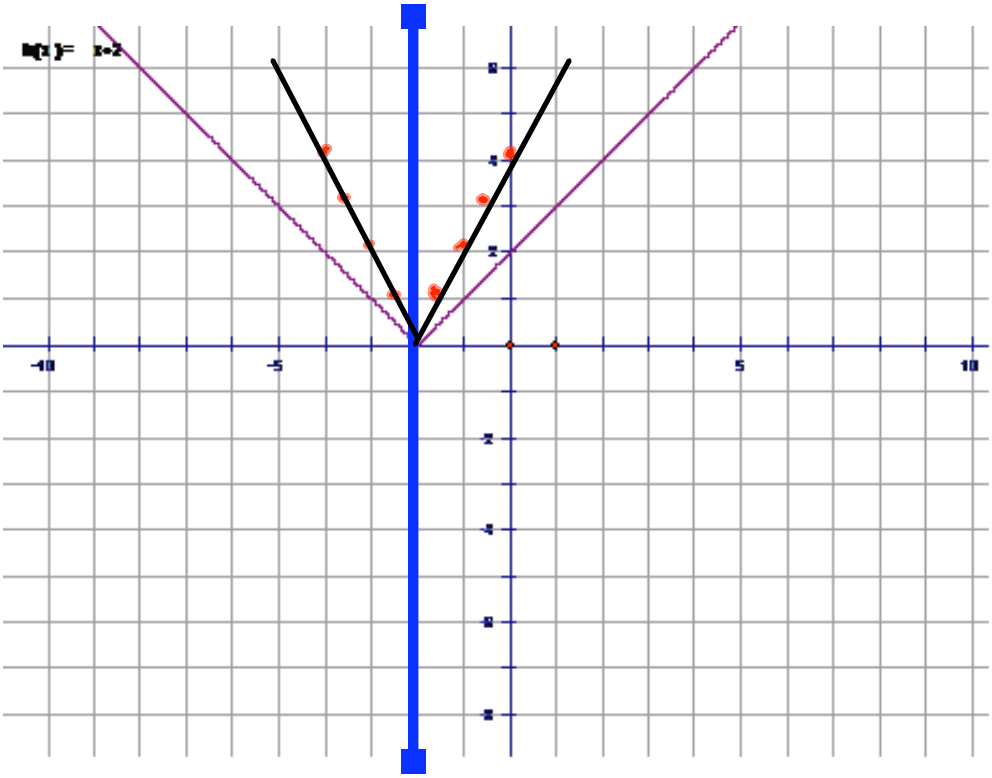
Draw the graph of the horizontal reflection in the line x = 3



Draw a vertical expansion by a factor of 2 about the line y = 4.



Draw a horizontal compression by a factor of $\frac{1}{2}$ about the line x = -2.



The point (2,1) is vertically expanded by a factor of 3 about the line y = -1. Determine the coordinates of the new point.