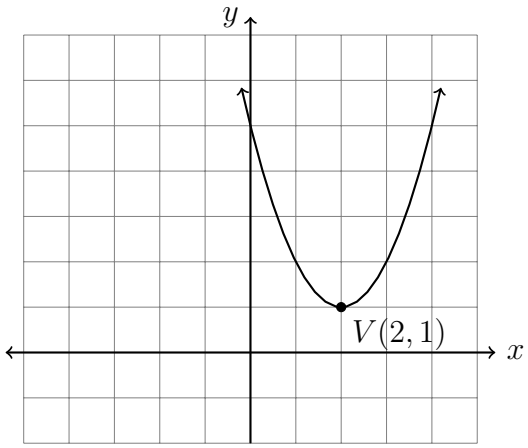
11.3 Square root function **HSG.CO.A.5**

1. The parabola with the equation $y - 1 = (x - 2)^2$, is shown below.

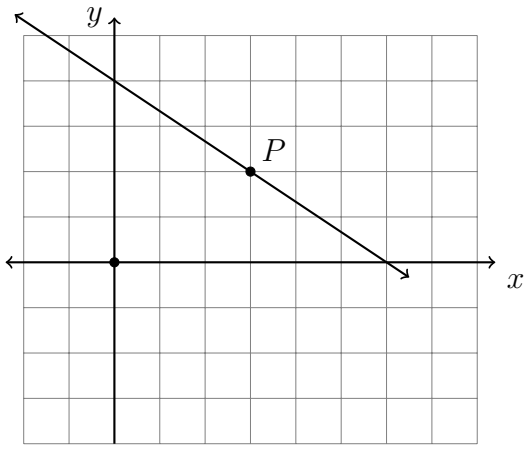


   (a) What translation would map $V(2, 1) \to (0, 0)$?

   (b) Reflect the parabola across the y-axis.

   (c) Mark and label the image V' with its coordinates.

2. The line l having the equation $y - 2 = -\frac{2}{3}(x - 3)$ is shown below.

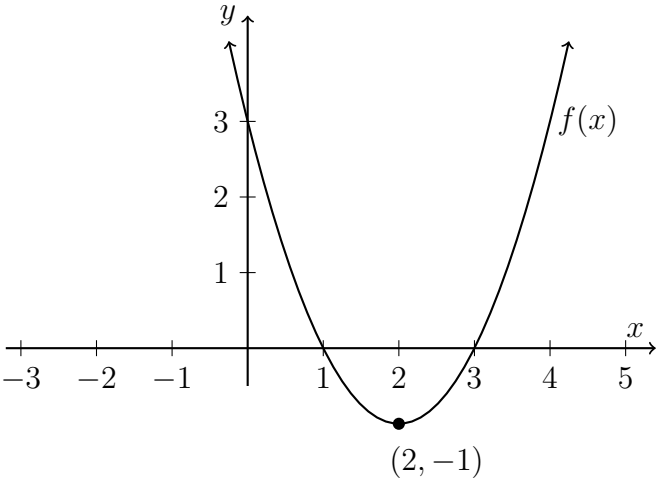


   (a) Write down coordinates of P.

   (b) Point P is mapped to the origin by
   $x \to x - h$
   $y \to y - k$
   Write down h and k.

   (c) Plot the image of l after the translation.

3. The parabola $y + 1 = (x - 2)^2$ graphed below.



   (a) Write down its y-intercept.

   (b) Write down its x-intercepts.

   (c) Reflect f across the y-axis.

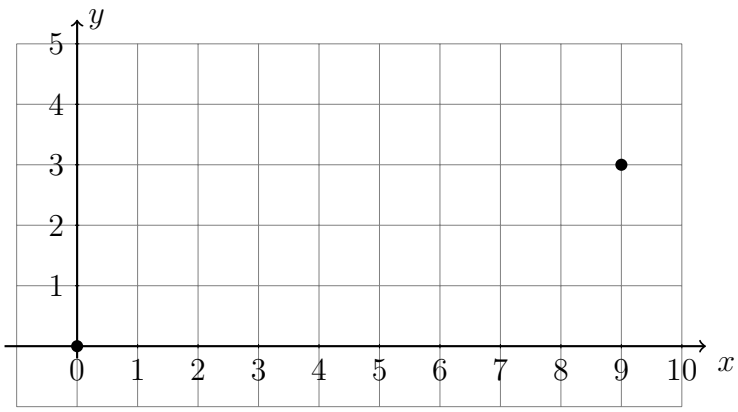
   (d) Mark and label the image parabola's intercepts and vertex.

Definition: The *square root* of a real number x is the number y such that $y^2 = x$. For example, 3 is the square root of 9 because $3^2 = 9$.

In general, there is a positive and a negative square root, $(-3)^2 = 9$ also. The positive square root is called the *principal square root* and written with the radical sign: $\sqrt{9} = 3$. To represent both the positive and negative square roots we write $\pm\sqrt{\ }$

4. Complete the t-table for the function f: $y = \sqrt{x}$, plot the points, and draw f as a smooth curve.

x	$\sqrt{x}$
0	0
1	
4	
9	3



5. The function $g : y = \sqrt{x-1}+2$ is plotted below as a solid line. What translation would map g onto the parent function (dotted)? State your answer in the form $x \to x - h$, $y \to y - k$.