

Part I.

- Graph and label $y = 2x + 4$ ✓
- Complete the table for $y = 2x + 4$

x	y
6	16
-2	0

$2(6)+4$
 $2(-2)+4=0$

- Write the _____ of the table _____.



x	y
16	6
0	-2

← $y = mt$

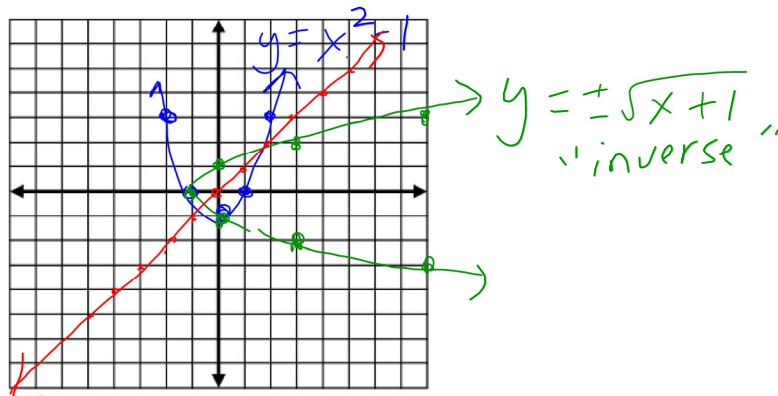
- Use your "inverse" points from #3 to find the "inverse" equation.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - (-2)}{16 - 0} = \frac{8}{16} = \frac{1}{2}$$

slope-intercept form

$$y = \frac{1}{2}x - 2$$

- Graph and label the "inverse" equation on the graph above.
- Draw the line $y = x$ on the graph. Do you see a relationship between the original equation and the "inverse" equation? If so, explain what is meant by the "inverse".



Part II.

1. Graph and label $y = x^2 - 1$

2. Complete the table for $y = x^2 - 1$

x	y
-2	3
-1	0
0	-1
1	0
2	3

$$\begin{aligned} (-2)^2 - 1 &= 3 \\ (-1)^2 - 1 &= 0 \\ (0)^2 - 1 &= -1 \\ (1)^2 - 1 &= 0 \\ (2)^2 - 1 &= 3 \end{aligned}$$

3. Solve the equation $x = y^2 - 1$ for y.

$$\begin{aligned} x + 1 &= y^2 \\ \pm\sqrt{x+1} &= y \end{aligned}$$

4. Use your "new" equation from #4 to complete the following table.

x	y
-1	0
0	±1
3	±2
8	±3

$$\begin{aligned} y &= \pm\sqrt{x+1} \\ y &= \pm\sqrt{(-1)+1} \\ y &= \pm\sqrt{0+1} = \pm 1 \\ y &= \pm\sqrt{3+1} = \pm 2 \\ y &= \pm\sqrt{8+1} = \pm 3 \end{aligned}$$

5. Graph and label the "new" equation on the graph above.

6. Draw the line $y = x$ on the graph. Do you see a relationship between the original equation and the "inverse" equation or "new" equation? If so, explain what is meant by the "inverse".

inverse is a reflection of original across the $y = x$ line.