

- 1.
- 2.
- 3.
4. Graph f^{-1} and f
(table)

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\underline{F}	$\underline{F^{-1}}$	
$y = x$	$x = y$	
Function	Function	
$y = x^2$	$y = \pm\sqrt{x}$	
Function	$y = \sqrt{x}$	
	$y = -\sqrt{x}$	

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① $f(x) = -\sqrt{x}$

① $y = -\sqrt{x}$
 $x = -\sqrt{y}$
 $\frac{x}{-1} = \frac{-\sqrt{y}}{-1}$
 $(-x)^2 = \sqrt{y}^2$
 $(-x)^2 = y$
 $f^{-1}(x) = (-x)^2$

② f^{-1}

x	y
0	0
-1	1
-1	1

f^{-1} D: $(-\infty, \infty)$ R: $[0, \infty)$

f

x	y
0	0
1	-1
1	-1

f D: $[0, \infty)$ R: $(-\infty, 0]$

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② $f(x) = \sqrt{x} + 3$

① $y = \sqrt{x} + 3$
 $x = \sqrt{y} + 3$
 $\frac{x-3}{-3} = \frac{\sqrt{y}}{-3}$
 $(x-3)^2 = \sqrt{y}^2$
 $(x-3)^2 = y$
 $f^{-1}(x) = (x-3)^2$

f^{-1}

x	y
3	0
4	1
2	1

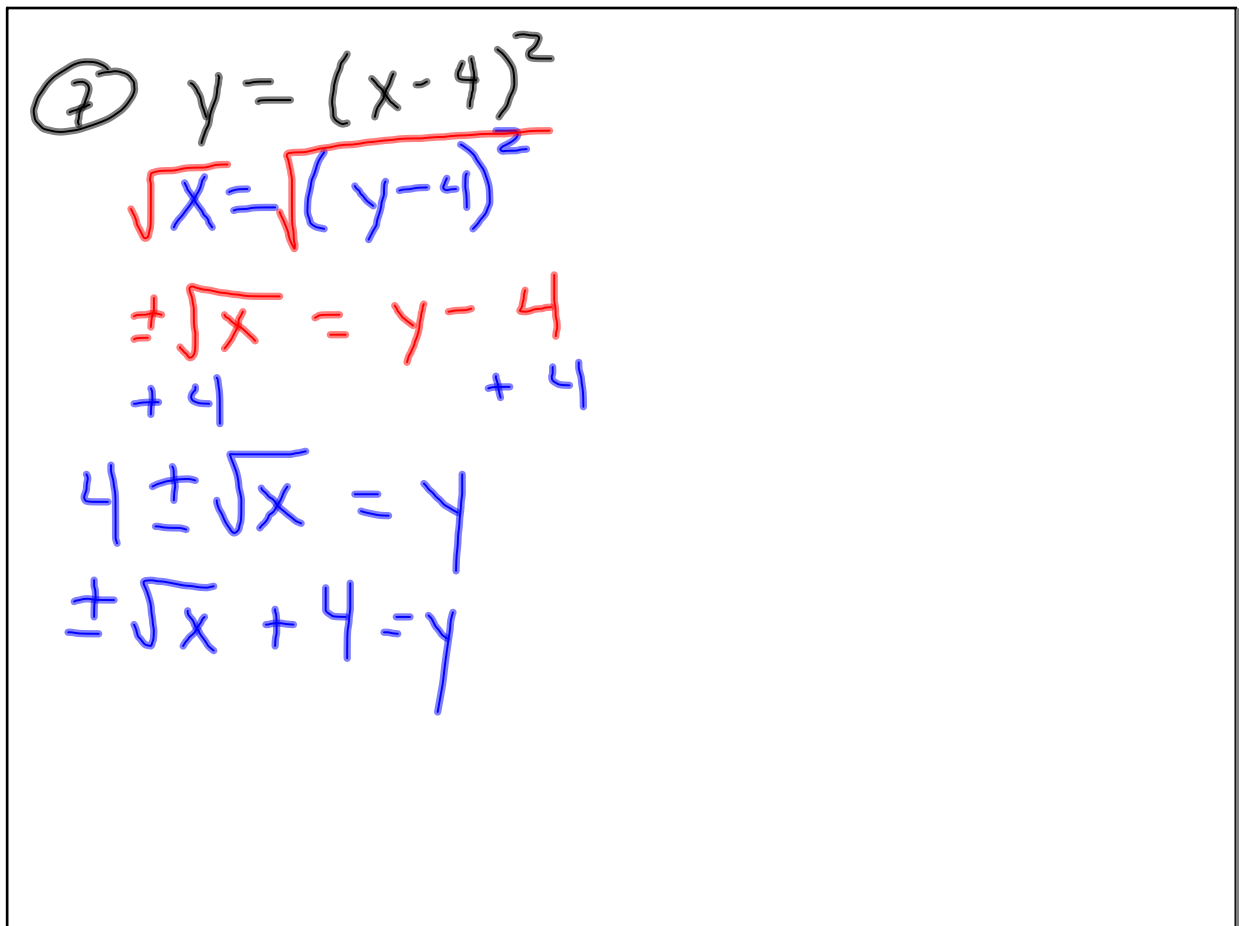
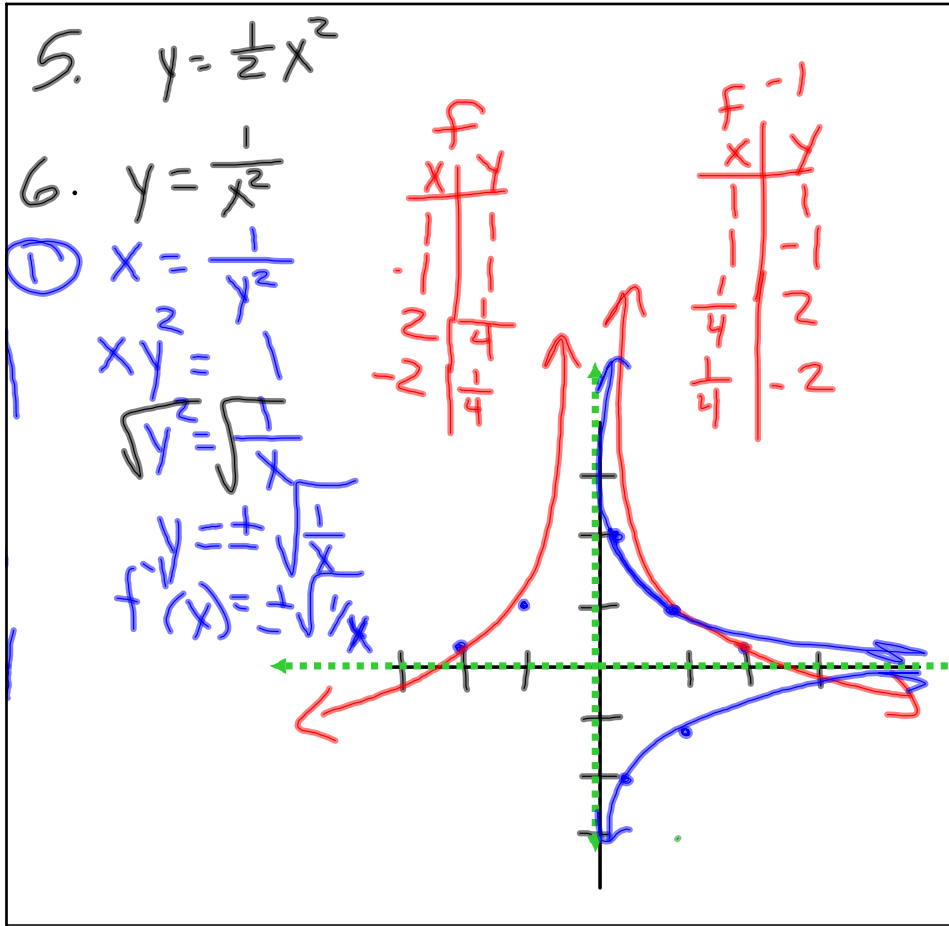
f^{-1} D: $(-\infty, \infty)$ R: $[0, \infty)$

f

x	y
0	3
1	4
4	2

f D: $[0, \infty)$ R: $(-\infty, \infty)$

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$$\textcircled{16} \quad y = 4 - 2\sqrt{x}$$

$$x = 4 - 2\sqrt{y}$$

$$\frac{x-4}{-2} = \frac{-2\sqrt{y}}{-2}$$

$$\left(\frac{x-4}{-2}\right)^2 = \sqrt{y}^2$$

$$f^{-1}(x) = \left(-\frac{1}{2}x + 2\right)^2$$

$$f^{-1} \begin{array}{c|c} x & y \\ \hline 4 & 0 \end{array}$$

$$\begin{aligned} &\Leftrightarrow -\frac{1}{2}x + 2 = 0 \\ &-2\left(-\frac{1}{2}x\right) = -2 \cdot -2 \\ &x = 4 \end{aligned}$$

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