

"f inverse of x"

1. Original y

x	$f(x)$
-1	2
0	7
1	14
2	23

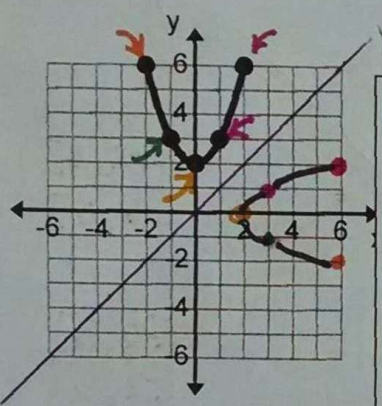
Inverse

x	$f^{-1}(x)$
2	-1
7	0
14	1
23	2

D: $\{-1, 0, 1, 2\}$
R: $\{2, 7, 14, 23\}$

D: $\{2, 7, 14, 23\}$
R: $\{-1, 0, 1, 2\}$

1.



Original
D: $[-2, 2]$
R: $[2, 6]$
Inverse
D: $[2, 6]$
R: $[-2, 2]$

1. $f(x) = \sqrt{x+8} - 4$

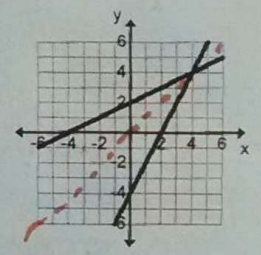
Inverse
 $y = \sqrt{x+8} - 4$
 $x = \sqrt{y+8} - 4$
 $+4$ $+4$
 $(x+4)^2 = (\sqrt{y+8})^2$
 $(x+4)^2 = y+8$
 -8 -8
 $(x+4)^2 - 8 = y$

Original
D: $[-8, \infty)$
R: _____
Inverse
D: $(-\infty, \infty)$
R: $[-8, \infty)$

GLUE

Find the INVERSE of a function from a **Table** or **Set of Ordered Pair**

Find the INVERSE from a **GRAPH**



Find the INVERSE from an **EQUATION**

$f(x) = 2x - 4$
 $f^{-1}(x) = \frac{x+4}{2}$

Switch every X and Y value.

2. Original

x	f(x)
1	-2
2	4
3	14
4	28

D: $\{1, 2, 3, 4\}$
R: $\{-2, 4, 14, 28\}$

Inverse

x	f ⁻¹ (x)
-2	1
4	2
14	3
28	4

D: $\{-2, 4, 14, 28\}$
R: $\{1, 2, 3, 4\}$

3. Original

$\{(0, 5), (-2, 6), (3, 2)\}$
D: $\{0, -2, 3\}$ R: $\{5, 6, 2\}$

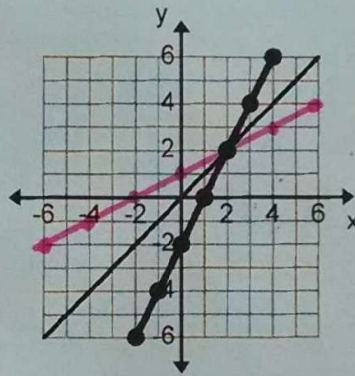
Inverse

$\{(5, 0), (6, -2), (2, 3)\}$
D: $\{5, 6, 2\}$ R: $\{0, -2, 3\}$

Switch every X and Y value.

*The graph of the inverse is always a reflection of the original across the line $y = x$.

2.



Original

D: $[-2, 4]$

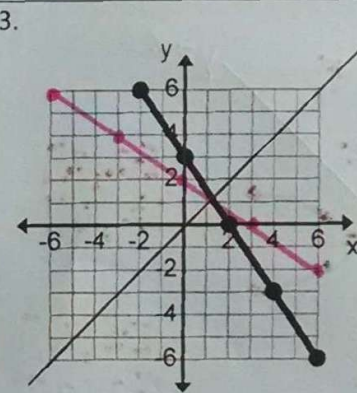
R: $[-6, 6]$

Inverse

D: $[-6, 6]$

R: $[-2, 4]$

3.



Original

D: $[-2, 6]$

R: $[-6, 6]$

Inverse

D: $[-6, 6]$

R: $[-2, 6]$

Switch the

X and Y.

*Typically, you will solve the new equation for Y.

2. $f(x) = (x + 5)^2 - 7$

Inverse:

$$y = (x + 5)^2 - 7$$

$$x = (y + 5)^2 - 7$$

$$\sqrt{x + 7} = \sqrt{(y + 5)^2}$$

$$\sqrt{x + 7} = y + 5$$

$$y = \sqrt{x + 7} - 5$$

Original

D: $(-\infty, \infty)$

R: $[-7, \infty)$

Inverse

D: $[-7, \infty)$

R: _____

3. $f(x) = \frac{-3x + 3}{2}$

Inverse:

$$2 \cdot x = \frac{-3y + 3}{2}$$

$$2x = -3y + 3$$

$$\frac{2x - 3}{-3} = \frac{-3y}{-3}$$

$$y = \frac{2x - 3}{-3}$$

Original

D: $(-\infty, \infty)$

R: $(-\infty, \infty)$

Inverse

D: $(-\infty, \infty)$

R: $(-\infty, \infty)$