

Graph the relation and connect the points. Then graph the inverse. Identify the domain and range for each relation.

1)

Relation	
$x$	$y$
0	2
1	5
5	6
8	9

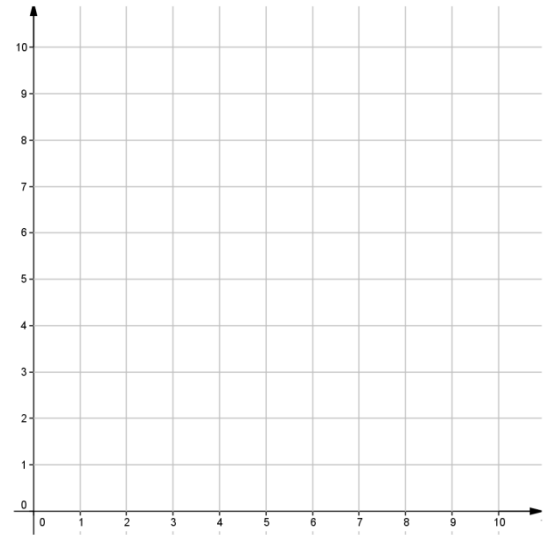
Inverse	
$x$	$y$

Domain:

Domain:

Range:

Range:



2)

Relation	
$x$	$y$
3	-1
4	-2
1	-4
-1	-4

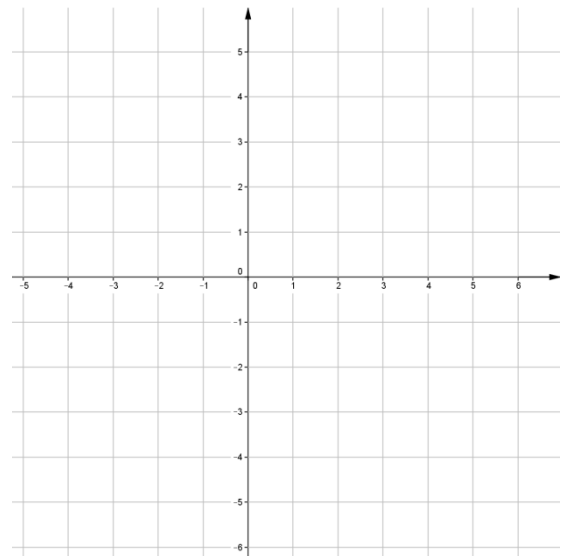
Inverse	
$x$	$y$

Domain:

Domain:

Range:

Range:



3) Find the inverse of the function. Also find the domain, range, and determine if the inverse is a function.

Function	Domain	Range	Inverse	Is the inverse a function?
$f(x) = \{(1, 2), (2, 2), (3, 4)\}$	{ }	{ }	$f^{-1}(x) = \{ \}$	Yes   No
$f(x) = \{(1, 3), (2, 5), (3, 7)\}$	{ }	{ }	$f^{-1}(x) = \{ \}$	Yes   No

4) A function  $g(x)$  has an inverse  $g^{-1}(x)$ . Find the values of the function and its inverse.

$x$	$g(x)$
3	4
2	1
8	7

a)  $g(2) =$

d)  $g^{-1}(1) =$

b)  $g(8) =$

e)  $g^{-1}(4) =$

c)  $g(3) =$

f)  $g^{-1}(7) =$

Use inverse operations to write the inverse of each function.

5)  $f(x) = 4x$

6)  $f(x) = x + 3$

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

8)  $f(x) = \frac{1}{2}(3 - 3x)$

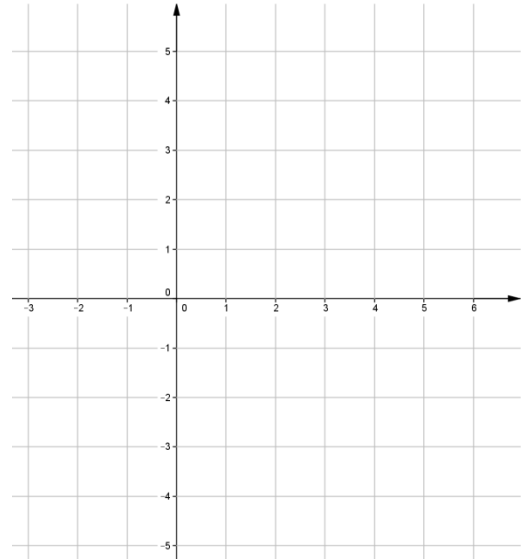
9)  $f(x) = \frac{3x - 5}{2}$

10)  $f(x) = x^2 + 3$

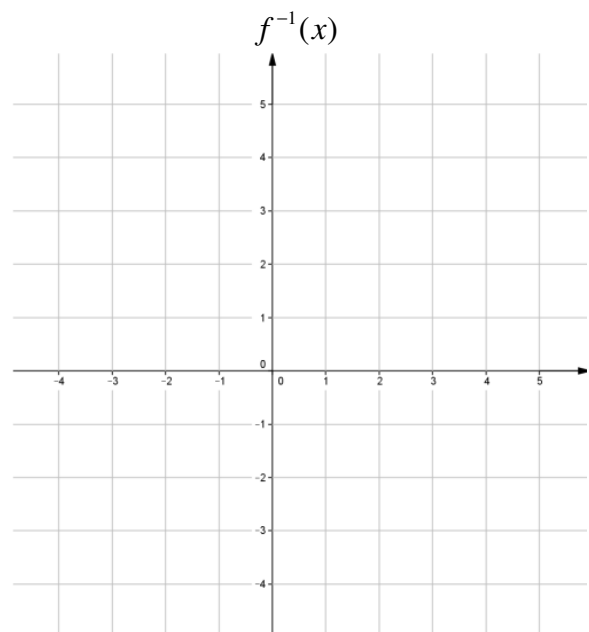
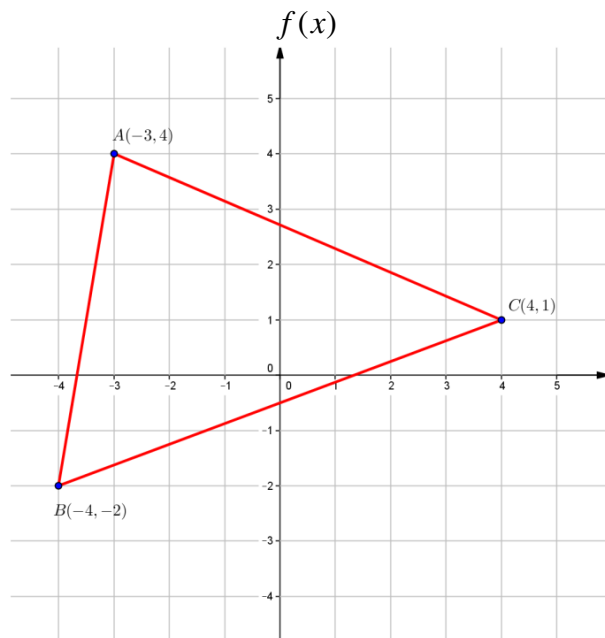
11)  $f(x) = 2x^2 + 4$

12)  $f(x) = \sqrt{2x+3} - 4$

13)  $f(x) = 3$

14) Graph  $f(x) = 3x - 4$ . Then write and graph the inverse.

15) Find the coordinates of the vertices of the inverse for the figure on the left.



- 16) A theater sells tickets for \$20. If you pay by credit card, the theater adds a service charge of \$3.00 to the entire order.
- Write a function that gives the amount billed  $C$  to the credit card as a function of the number  $n$  of tickets purchased.
  - Write the inverse function, and use it to find the number of tickets purchased when the credit card bill is \$303.
  - Is it possible to have a total of \$213 billed to your credit card for these tickets? Explain.

**Give the inverse of each linear function, where  $y = f(x)$ .**

17)  $y = mx + b$

18)  $ax + by = c$

19)  $y - y_1 = m(x - x_1)$