

Name _____ Period _____ Date _____

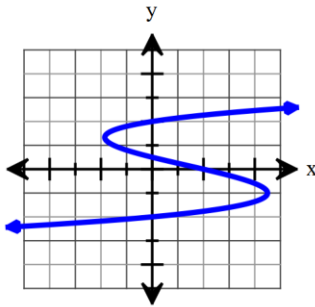
Determine whether the function is one-to-one.

1. $\{(-2,5),(-1,3),(3,7),(4,12)\}$

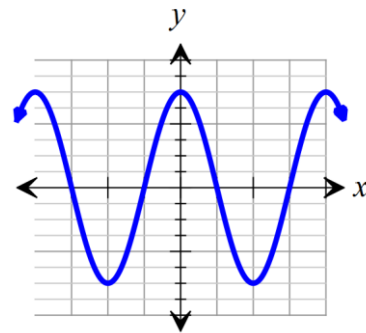
2. $\{(2,6),(-3,6),(4,9),(1,10)\}$

In each exercise determine a) whether the relation is a function and b) whether the relations inverse is a function.

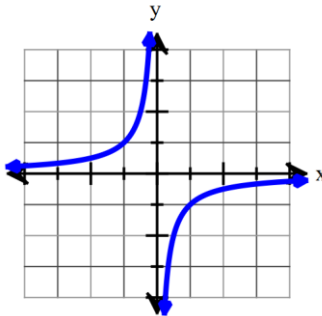
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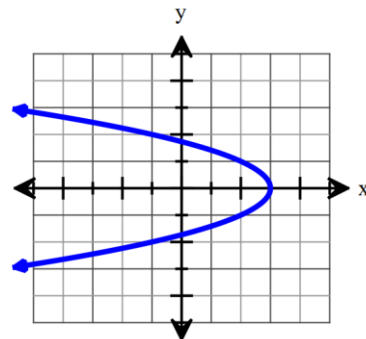
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5.



6.



Find the inverse of each one-to-one function, then state the domain and range of each inverse function.

7. $\{(-2,2),(-1,6),(0,8),(1,-3),(2,9)\}$

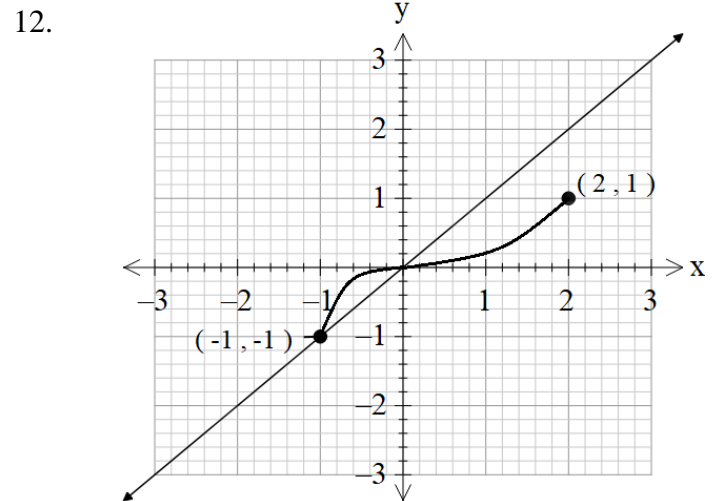
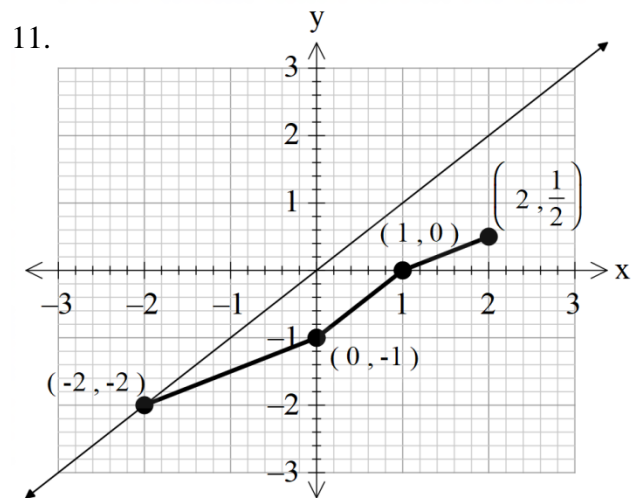
8. $\{(-2,-8),(-1,-1),(0,0),(1,1),(2,8)\}$

Confirm that f and g are inverses by showing that $f(g(x)) = x$ and $g(f(x)) = x$. Give any values of x that need to be excluded from the domain of f and the domain of g . Show work!

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

10. $f(x) = x^3 + 1$ and $g(x) = \sqrt[3]{x-1}$

The graph of a one-to-one function f is given. Draw the graph of the inverse function f^{-1} . The graph of $y = x$ is also given for convenience.



The function f is one-to-one. Find its inverse and domain. Show work!

13. $f(x) = 3x - 6$ Domain:

14. $f(x) = 2x + 5$ Domain:

15. $f(x) = \frac{2x-3}{x+1}$

Domain:

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

Domain:

17. $f(x) = \sqrt{x-2}$

Domain:

18. $f(x) = \sqrt{x+5}$

Domain:

19. $f(x) = x^3 + 4$

Domain:

20. $f(x) = \sqrt[3]{x+3} - 2$

Domain:

21. $f(x) = (x-1)^3 + 6$

Domain:

22. $f(x) = \frac{1}{2}\sqrt{x-1} - 3$

Domain:

Use the table to write the table for the inverse function.

23.

x	$f(x)$
0	4
2	2
4	-4
6	-14
8	-28

x	$f^{-1}(x)$

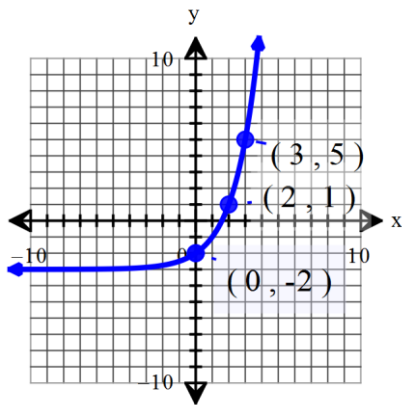
24.

x	$f(x)$
-17	1.7
-12	1.6
-9	1.5
-7	1.4
-3	1

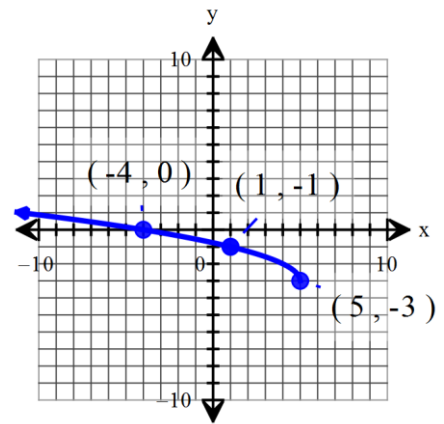
x	$f^{-1}(x)$

Use the graph to draw the graph to the inverse function.

25.



26.



27. Use the graph from problem 25 to evaluate the following:

a) $f(2)$

b) $f(1)$

c) $f^{-1}(0)$

d) $f^{-1}(-1)$

28. If $f(7) = 13$ and f is one-to-one, what is $f^{-1}(13)$?

29. The domain of a one-to-one function g is $(-\infty, 0]$, and its range is $[0, \infty)$. State the domain and the range of g^{-1} .

30. A function $y = f(x)$ is increasing on the interval $(0, 5)$. What conclusion can you draw about the graph of $y = f^{-1}(x)$?

31. A function f has an inverse function. If the graph of f lies in quadrant I, in which quadrant does the graph of f^{-1} lie?

Review Exercises

Multiply the polynomials. Show work!

32. $(x-7)(x+7)$

33. $(x-7)^2$

34. $(x+7)^2$

35. Write the polynomial in factored form with zeros of -4, 2, 0.

36. Divide using synthetic division. $\frac{2x^4 - 3x^2 - 5x + 10}{x - 2}$

37. Factor. $20x^2 - 45y^2$