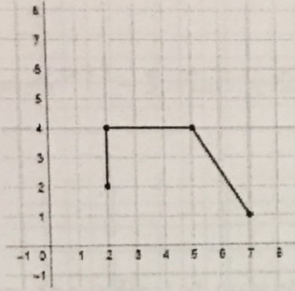
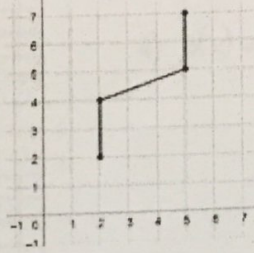


1. Sketch the graph of the inverse of the following relation.



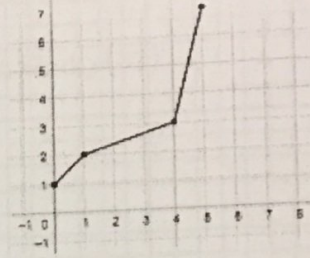
Is the inverse a function?

2. Sketch the graph of the inverse of the following relation.



Is the inverse a function?

3. Sketch the graph of the inverse of the following relation.



Is the inverse a function?

Match each relation with its inverse.

\_\_\_\_\_ 4.  $y = x^2 - 6x + 8$

\_\_\_\_\_ 5.  $y = x^3$

\_\_\_\_\_ 5.  $y = 3^x$

\_\_\_\_\_ 5.  $y = 6x - 7$

\_\_\_\_\_ 6.  $y = 7x - 6$

\_\_\_\_\_ 7.  $y = 2 \pm \sqrt{x}$

\_\_\_\_\_ 8.  $y = 9x^2 - 7$

A.  $y = \frac{x+6}{7}$

B.  $y = \sqrt[3]{x}$

C.  $y = \log_3 x$

D.  $y = 3 \pm \sqrt{x+1}$

E.  $y = (x-2)^2$

F.  $y = \pm \frac{1}{3} \sqrt{x+7}$

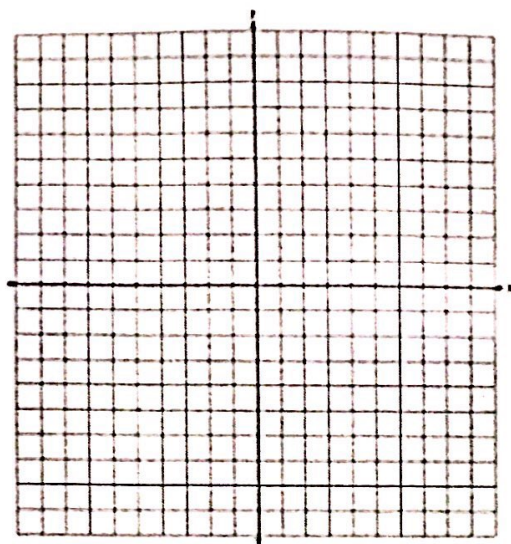
G.  $y = \frac{x+7}{6}$

Find the inverse:

9)  $y = \frac{2x-3}{x+7}$

10.)  $y = (2x-3)^2 - 7$

Graph: 9)  $y = \log_4(x + 1) - 3$



Important points:

Domain:

Range:

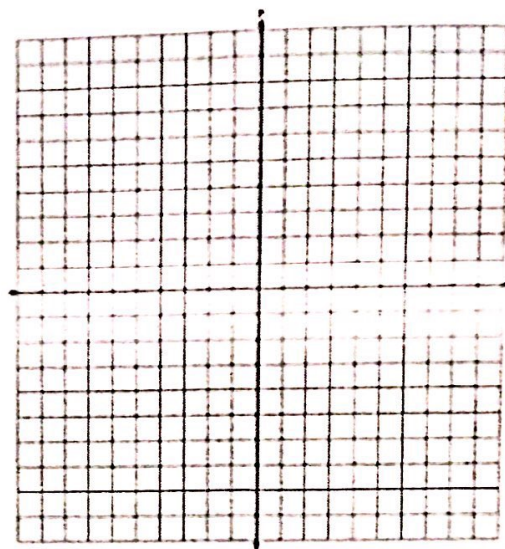
Increasing:

Decreasing:

End behavior:

Asymptotes:

10)  $y = \log_3(x - 2) + 2$



Important Points:

Domain:

Range:

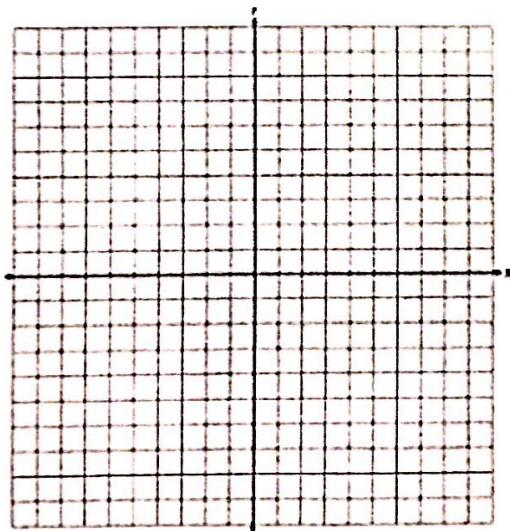
Increasing:

Decreasing:

End behavior:

Asymptotes:

Graph: 11)  $y = -2^{x+1} + 3$



Important Points:

Domain:

Range:

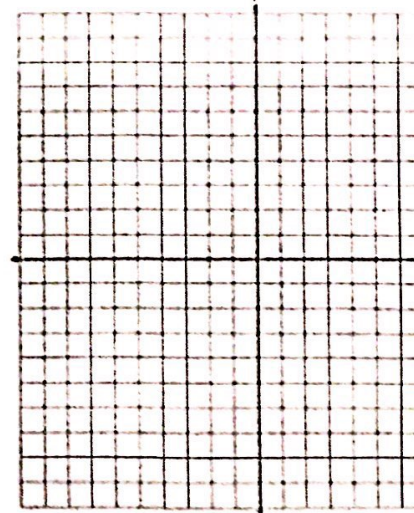
Increasing:

Decreasing:

End behavior:

Asymptotes:

12)  $y = 4(2)^{x-3} - 4$



Important Points:

Domain:

Range:

Increasing:

Decreasing:

End behavior:

Asymptotes:

Evaluate each function.

1)  $h(x) = 3|-2x| + 3$ ; Find  $h(2)$

2)  $g(t) = 2|t+3| + 1$ ; Find  $g(-3)$

3)  $h(x) = -5^{-x+1} - 3$ ; Find  $h(-2)$

4)  $p(x) = -3x^2 - 5x$ ; Find  $p(-3)$

Perform the indicated operation.

5)  $f(n) = 3n + 1$   
 $g(n) = n^2 - 2$   
Find  $(f \circ g)(-5)$

6)  $g(x) = 4x + 5$   
 $h(x) = x^2 - 2$   
Find  $(g - h)(2)$

7)  $g(x) = x^2 + 5x$   
 $f(x) = 3x + 4$   
Find  $g(f(x))$

8)  $g(a) = -2a^3 - 3a$   
 $h(a) = 2a - 5$   
Find  $(g + h)(a)$

9)  $h(n) = 2n + 4$   
 $g(n) = -3n^2 - 5n$   
Find  $(h - g)(n)$

10)  $g(a) = a - 1$   
 $f(a) = a - 2$   
Find  $g(f(a))$

11)  $f(t) = -t + 2$   
 $g(t) = t - 4$   
Find  $(f - g)(t)$

12)  $g(x) = 2x + 1$   
 $f(x) = 3x + 5$   
Find  $g(f(x))$

13)  $h(x) = 4x + 4$   
 $g(x) = 2x + 2$   
Find  $h(x) - g(x)$

14)  $h(a) = a^2 + 3$   
 $g(a) = 2a - 5$   
Find  $h(a) + g(a)$

15)  $f(x) = 2x^2 - 2$   
 $g(x) = 3x + 1$   
 Find  $f(g(x))$

16)  $h(x) = -3x - 3$   
 $g(x) = 3x + 4$   
 Find  $h(g(x))$

17)  $g(x) = -2x + 4$   
 $f(x) = x - 2$   
 Find  $(g \circ f)(x)$

18)  $g(x) = -3x - 1$   
 $h(x) = 3x - 2$   
 Find  $g(h(x))$

19)  $g(a) = a - 3$   
 $h(a) = 4a - 4$   
 Find  $(g \circ h)(6)$

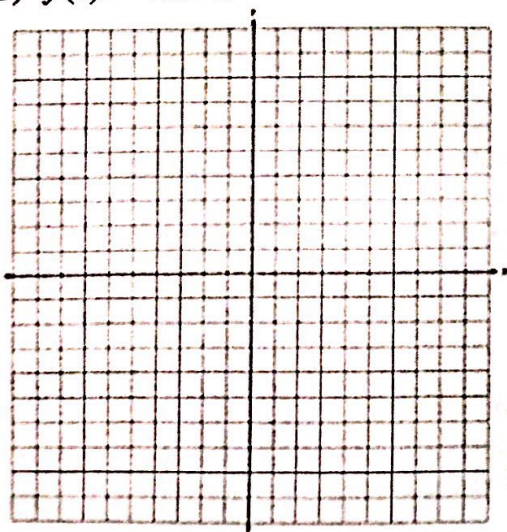
20)  $g(x) = 2x - 1$   
 $h(x) = -x$   
 Find  $(g \circ h)(2)$

21)  $g(n) = -3n - 5$   
 $h(n) = 4n + 4$   
 Find  $g(h(-6))$

22)  $g(t) = t - 2$   
 $f(t) = t^3 - 2t^2$   
 Find  $(g \circ f)(2)$

Find the inverse of each function. Then graph the function and its inverse.

23)  $f(n) = -2n - 1$



Rewrite each equation in logarithmic form.

24)  $b^a = 180$

25)  $8^u = v$

26)  $y^{11} = x$

27)  $19^m = 68$

Rewrite each equation in exponential form.

28)  $\log_y x = -\frac{4}{3}$

29)  $\log_a b = -\frac{19}{12}$

30)  $\log_n 110 = m$

31)  $\log_y 177 = x$

Expand each logarithm.

32)  $\ln(x^4 y^2)$

33)  $\log_2 \left( \frac{a^6}{b} \right)^2$

34)  $\log_8 \left( \frac{u^5}{v} \right)^3$

35)  $\log_3 \sqrt{a \cdot b \cdot c}$

Condense each expression to a single logarithm.

36)  $2\log_7 u - 3\log_7 v$

37)  $6\log_9 x - 12\log_9 y$

38)  $\log_8 x + \log_8 y + 3\log_8 z$

39)  $3\log_6 x + 6\log_6 y$

Solve:

40)  $2^{3x-1} = 8^{2x+3}$

41)  $3^{2x} \cdot 9^{x+2} = 27^{2x-9}$

42.)  $\frac{1}{32} = 8^{x+1}$