

Name: 

## Chapter 5.4 and 5.6 review

## Matching

Match the function below with its inverse.

a.  $g(x) = \frac{x}{3} - 5$

e.  $g(x) = \frac{(x-5)^3 + 1}{3}$

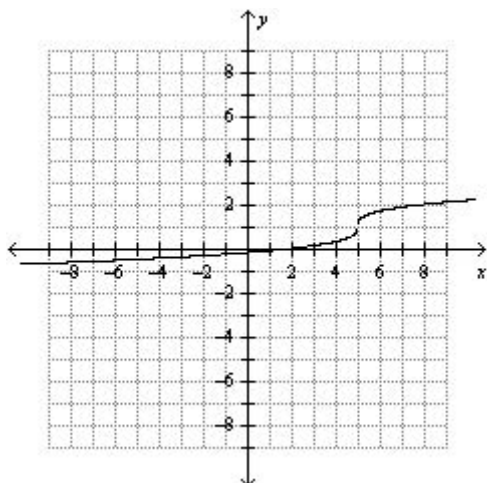
b.  $g(x) = \left(\frac{x-5}{-3}\right)^2 + 1$ , where  $x \leq 5$

f.  $g(x) = \frac{x-5}{3}$

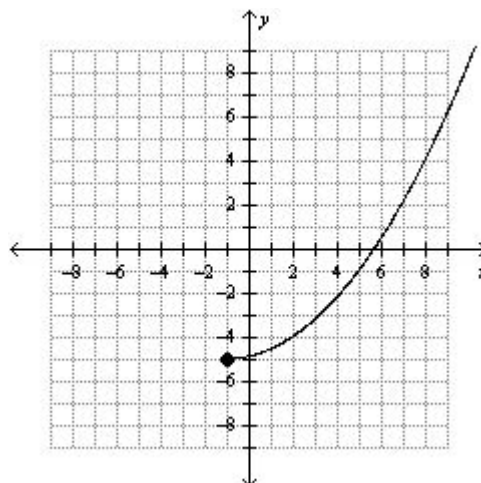
c.  $g(x) = \pm\sqrt{\frac{x+1}{3}} - 5$

g.  $g(x) = \pm\frac{\sqrt{x+1}}{3} - 5$

d.



h.



1.  $f(x) = 3x + 5$

2.  $f(x) = -3\sqrt{x-1} + 5$

3.  $f(x) = 3(x+5)^2 - 1$

4.  $f(x) = 3(x-1)^3 + 5$

5.  $f(x) = (3x+15)^2 - 1$

6.  $f(x) = 3x + 15$

7.  $f(x) = \sqrt[3]{3x-1} + 5$

8.  $f(x) = 3\sqrt{x+5} - 1$

## Short Answer

Solve the equation. Check your solution(s).

9.  $\sqrt{7x-6} = 8$

10.  $\sqrt[3]{4x+5} = -3$

11.  $-6\sqrt[3]{10x+11} = -19$

12.  $x-10 = \sqrt{32x}$

13.  $\sqrt{-3x+55} = x-9$

14.  $\sqrt[3]{8x^3 - 125} = 2x - 5$

15.  $\sqrt{-5x - 35} - \sqrt{x + 25} = 0$

16.  $\sqrt{5x - 9} - 1 = \sqrt{2x - 1}$

17.  $4x^{1/3} = 20$

18.  $3x^{3/4} - 10 = 71$

19.  $(x+110)^{1/2} = x$

20. Solve  $y = f(x)$  for  $x$ . Then find the input(s) when the output is  $-10$ .

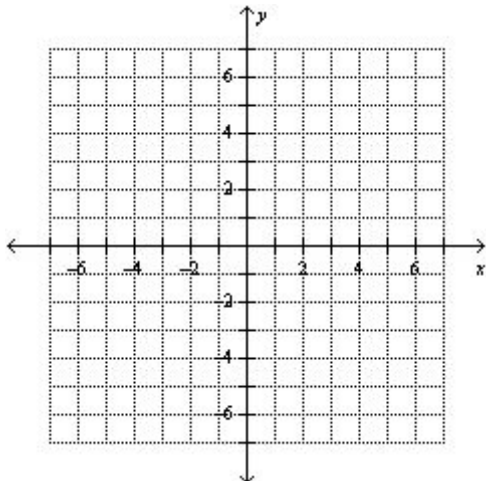
$$f(x) = -7x + 6$$

21. Solve  $y = f(x)$  for  $x$ . Then find the input(s) when the output is  $-7$ .

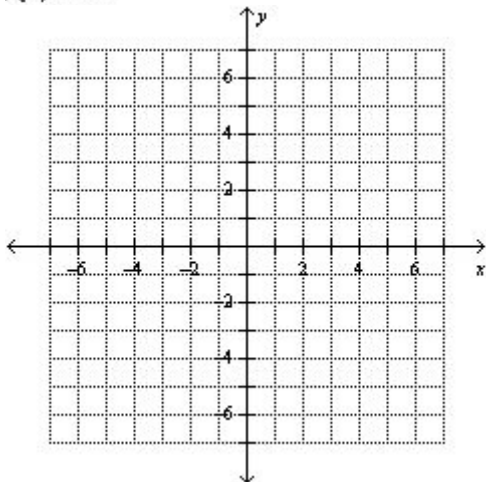
$$f(x) = 3x^4 - 10$$

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

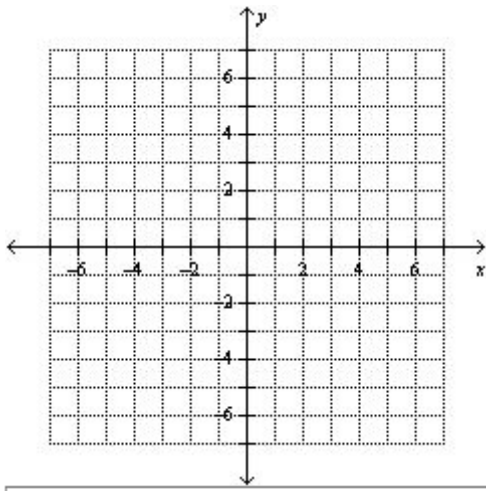
22.  $f(x) = -4x + 2$




23.  $f(x) = 7x^2$




24.  $f(x) = (x + 1)^3$




**Determine whether the inverse of  $f$  is a function. Then find the inverse.**

25.  $f(x) = x^3 - 2$

26.  $f(x) = 6x^4 - 6$

27.  $f(x) = \sqrt{x+4}$

28.  $f(x) = 5\sqrt[3]{x+6}$

29. The cost  $c$  (in dollars) of your trip to an amusement park is  $c = 0.5r + 5$ , where  $r$  is the number of rides you go on. Find the inverse function. How many rides can you go on if you have \$9.00?

30. The height  $h$  (in meters) of an object dropped from a 350 meter cliff can be approximated by  $h = -4.9t^2 + 350$ , where  $t$  is the time (in seconds) since the object was dropped.
- Find the inverse function. Describe what it represents.
  - How many seconds does it take for the object to hit the ground?

