Honors Math II

Ch. 7 day 3 Inverses

Name_____

Period_____Date_____

Find the inverse of each relation and state the domain and range of the inverse.

1. $\{(1,-3),\ (-2,\ 3),\ (5,1),\ (6,4)\}$

2. $\{(-5,7),\ (-6,-8),\ (1,-2),\ (10,3)\}$

Find an equation for the inverse for each of the following relations and state the domain.

3. $f(x) = 3x + 2$

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

4. $g(x) = -5x - 7$

   $g^{-1}(x) = ?$

5. $h(x) = 12x - 3$

   $h^{-1}(x) = ?$

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

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

7. $g(x) = -\frac{3}{4}x + 5$

   $g^{-1}(x) = ?$

8. $h(x) = x^2 - 4\,,\quad x \geq 0$

   $h^{-1}(x) = ?$

9. $f(x) = (x+3)^2, \quad x \geq -3$
$f^{-1}(x) = ?$

10. $g(x) = (x-6)^2 + 3\,, \quad x \geq 6$
$g^{-1}(x) = ?$

11. $f(x) = \sqrt{x-2}\,,\ y \geq 0$
$f^{-1}(x) =$

12. $g(x) = \sqrt{x+5}\ ,\ y \geq 0$
$g^{-1}(x) = ?$

13. $h(x) = \sqrt{x} + 8\,,\ y \geq 8$
$h^{-1}(x) = ?$

14. $f(x) = x^3 - 2$
$f^{-1}(x) = ?$

Verify that f and g are inverse functions.

15. $f(x) = x + 6\,,\ g(x) = x - 6$

16. $f(x) = 5x + 2\,,\ g(x) = \frac{x-2}{5}$

17. $f(x) = -3x - 9\,,\ g(x) = -\frac{1}{3}x - 3$

18. $f(x) = (x+2)^3 - 3\,,\ g(x) = \sqrt[3]{x+3} - 2$

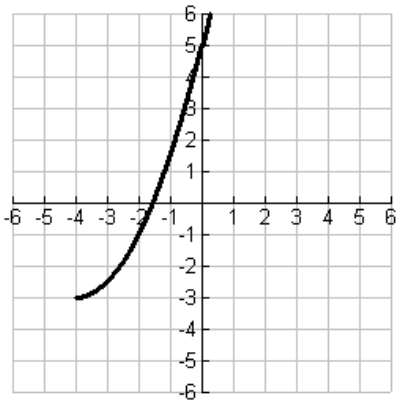
Verify that f and g are inverse functions.

19. $f(x) = -4x + 8\,,\ g(x) = -\frac{1}{4}x + 2$

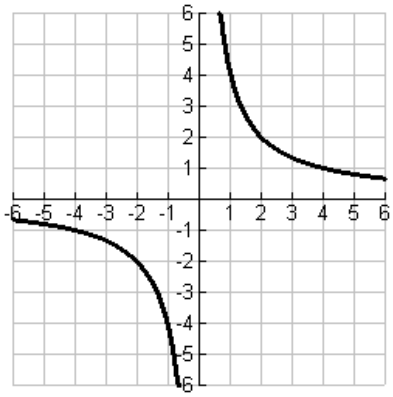
20. $f(x) = \frac{1}{2}x - 7\,,\ g(x) = 2x + 14$

Draw the inverse of each graph, if the function is its own inverse write 'Own inverse'

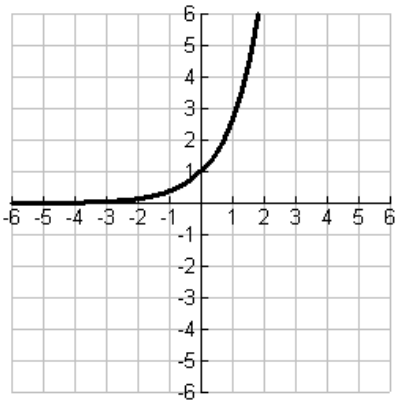
21.



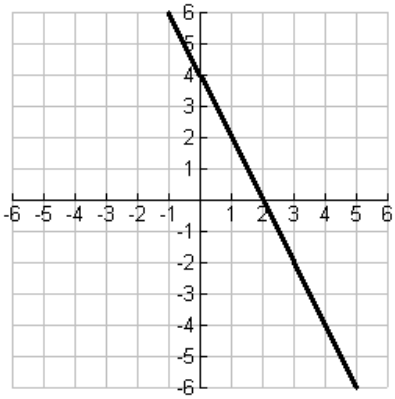
22.



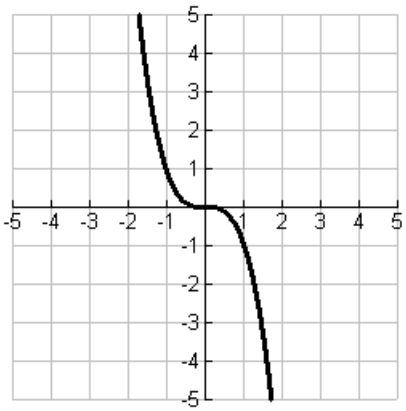
23.



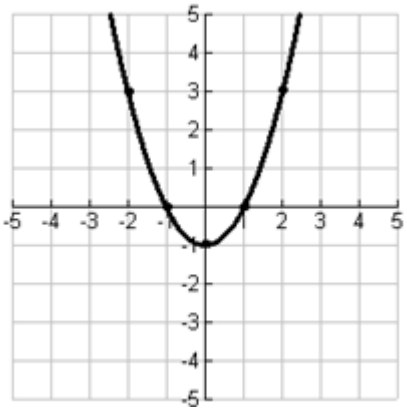
24.



25.



26.



Perform the indicated operation, given the following:

Let $f(x) = 2x + 3,\ \ g(x) = 2x^2 + 1\ \ and\ \ h(x) = x - 4$

27. $(f - h)(x) =$

28. $(h + f^{-1})(x) =$

29. $(g \circ h)(-2) =$

30. $g(x) \cdot f(x) =$

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

32. $(f \circ h)(x) =$

Solve.

33. $2|x + 4| - 3 = 5$

34. $|x - 6| - 4 = 36$