[10-09-20-L11]

10.4 Exercises

For each of the following that are one-to-one functions, find the inverse. Assume $y = f(x)$. See Examples 1 and 2.

1. $\{(3, 5), (2, 9), (4, 7)\}$

2. $\{(-1, 4), (0, 5), (1, -2), (2, -4), (3, 3)\}$

3. $\{(-2, 4), (-1, 1), (0, 0), (1, 1), (2, 4)\}$

4. $\{(-3, -1), (-2, 0), (-1, 1), (0, 2)\}$

5. $f(x) = 2x$

6. $f(x) = 3x - 1$

7. $2y + 1 = 3x$

8. $5y + 6x = 30$

9. $2y = x + 1$

10. $y = 2x + 3$

11. $x - 1 = y^3$

12. $x = y^3 + 4$

13. $y = \sqrt{x}$

14. $y = \sqrt{x + 2}$

15. $y = \dfrac{1}{x}$

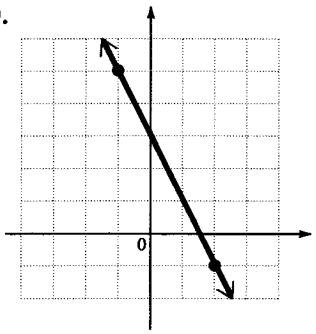
16. $y = -\dfrac{3}{x}$

17. $2y = x^2 + 1$

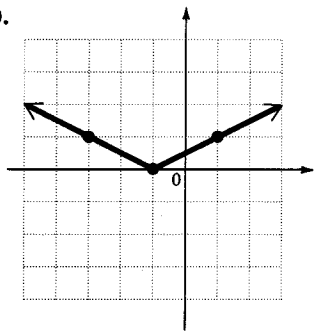
18. $y = 2x^2 + 3$

The graphs of some functions are given below. For each function that is one-to-one, graph the inverse with a dashed curve on the same axes as the function. See Example 4.

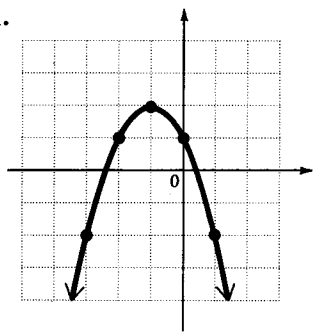
19.



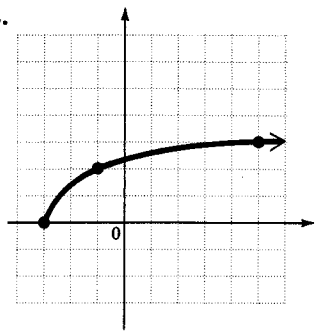
20.



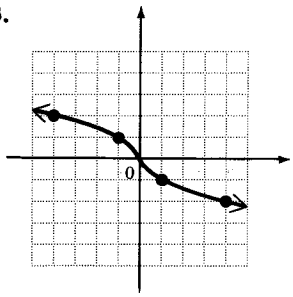
21.



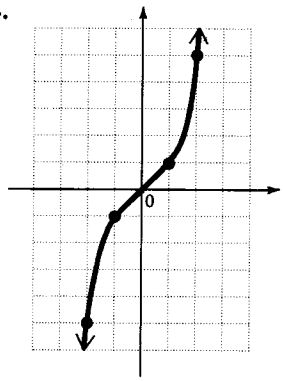
22.



23.



24.



Graph each one-to-one function as a solid curve and its inverse as a dashed curve on the same axes. (The inverses of these functions were found in Exercises 5–16.) In Exercises 35 and 36, find a number of points to get the graph.

25. $f(x) = 2x$

26. $f(x) = 3x - 1$

27. $2y + 1 = 3x$

28. $5y + 6x = 30$

Section 10.4 (page 438)

1. $\{(5, 3), (9, 2), (7, 4)\}$ **3.** Not a one-to-one function **5.** $f^{-1}(x) = x/2$ **7.** $f^{-1}(x) = (2x + 1)/3$ **9.** $f^{-1}(x) = 2x - 1$ **11.** $f^{-1}(x) = x^3 + 1$ **13.** $f^{-1}(x) = x^2, x \geq 0$

15. $f^{-1}(x) = \dfrac{1}{x}$ **17.** Not a one-to-one function