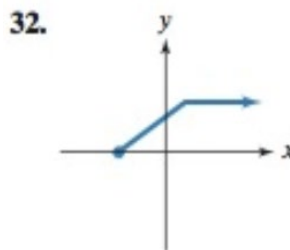
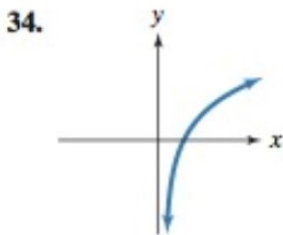


A function is one to one if each y-coordinate has exactly one x-coordinate. Every one to one function f has an inverse function, which is denoted by f^{-1} . The inverse is obtained by interchanging x and y and then solving for y .

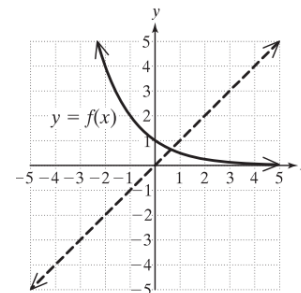
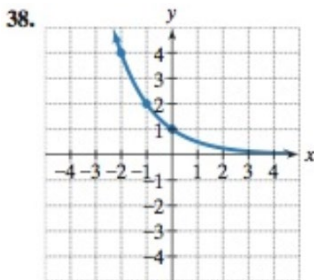
Note: If both $f(g(x)) = x$ and $g(f(x)) = x$, then f and g are inverses of each other.

Horizontal Line Test: If there is a horizontal line that crosses the graph of a function at more than one point, then the function is not one to one. Otherwise, the function is one to one.

Page 321-322 #34, 32 *Which graphs in Exercises 29–34 represent functions that have inverse functions?*



Page 322 #38 *In Exercises 35–38, use the graph of f to draw the graph of its inverse function.*



Page 321 #4 *In Exercises 1–10, find $f(g(x))$ and $g(f(x))$ and determine whether each pair of functions f and g are inverses of each other.*

4. $f(x) = 4x + 9$ and $g(x) = \frac{x - 9}{4}$

- Page 321 #16
- a. Find an equation for $f^{-1}(x)$, the inverse function.
 - b. Verify that your equation is correct by showing that $f(f^{-1}(x)) = x$ and $f^{-1}(f(x)) = x$.

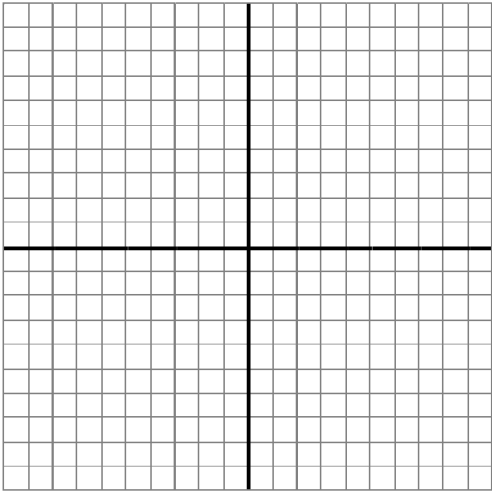
16. $f(x) = 3x - 1$

- Page 321 #18
- Find an equation for $f^{-1}(x)$, the inverse function.
 - Verify that your equation is correct by showing that $f(f^{-1}(x)) = x$ and $f^{-1}(f(x)) = x$.

18. $f(x) = x^3 - 1$

- Page 321 #42
- Find an equation for $f^{-1}(x)$.
 - Graph f and f^{-1} in the same rectangular coordinate system.
 - Use interval notation to give the domain and the range of f and f^{-1} .

42. $f(x) = x^2 - 1, x \leq 0$



Page 321 #49a **a.** Find an equation for $f^{-1}(x)$.

49. $f(x) = \sqrt{x - 1}$

Page 321 #51a a. Find an equation for $f^{-1}(x)$.

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