Name: _____  Date: _____

# Section 1.4 Extra Practice

**1. a)** Explain how to find the inverse of a relation.
  **b)** What notation is used to represent the inverse of $y = f(x)$?
  **c)** Show the mapping notation that relates the points on the graph of $y = f(x)$ to the points of the inverse of this function.

**2.** Graph each function and its inverse on the same grid.

  **a)** $y = x^2$    **b)** $y = |x|$
  **c)** $y = 2x - 6$    **d)** $y = (x + 4)^2$

**3.** From your graphs of the inverses in #2, state which are functions. Explain how you know.

**4.** Determine algebraically the equation of the inverse of each function.

  **a)** $f(x) = 3x - 6$    **b)** $f(x) = \dfrac{1}{2}x + 5$

  **c)** $f(x) = \dfrac{1}{3}(x + 12)$    **d)** $f(x) = \dfrac{8x + 12}{4}$

**5. a)** Graph $f(x) = (x - 3)^2 + 5$. State the domain and range.
  **b)** Graph the inverse of $f(x) = (x - 3)^2 + 5$. State the domain and range.
  **c)** How can you restrict the domain of the relation so that the inverse is a function?

**6.** Determine algebraically the equation of the inverse of each function.
  **a)** $f(x) = (x + 4)^2$    **b)** $f(x) = x^2 - 7$
  **c)** $f(x) = (x - 2)^2 + 5$    **d)** $y = (x - 5)^2 - 9$

**7.** For each of the following, state two ways to restrict the domain so that the inverse is a function.
  **a)** $f(x) = x^2 - 5$    **b)** $f(x) = (x + 4)^2 + 7$
  **c)** $f(x) = (x - 3)^2$    **d)** $f(x) = -x^2 + 2$

**8.** Determine each of the following given the function $f(x) = x - 8$.
  **a)** $f^{-1}(4)$    **b)** $f^{-1}(-2)$

  **c)** $f^{-1}(8)$    **d)** $f^{-1}(0)$

**9.** Copy each graph of $y = f(x)$. Then, sketch the graph of its inverse, $x = f(y)$. Determine whether the inverse is a function.

**a)**



**b)**



**c)**