

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Instructions:** Please complete the following problems.**Problem 1.** True or False: The graph of  $y = f(ax)$  is a vertical compression of the graph  $y = f(x)$  if  $0 < a < 1$ .**Problem 2.** True or False: The graph  $y = |x - 3|$  is a horizontal shift left 3 units from  $y = |x|$ .**Problem 3.** Describe the transformation of:  $\sqrt{x - 3} - 4$ **Problem 4.** Describe the transformation of:  $-\frac{1}{4}(x + 8)^3 + 7$ **Problem 5.** Sketch the graph of  $f(x) = -(x + 4)^2 - 5$ **Problem 6.** Sketch the graph of  $f(x) = |x - 4| + 3$ **Problem 7.** Write a function that fits the following description. The graph  $f(x) = x^2$  that is reflected over the y-axis and shifted down 4 units.**Problem 8.** Write a function that fits the following description. The graph  $f(x) = |x|$  that is shifted right 2 units, reflected over the x-axis, and shifted down 3 units.