Name: _____

Work on as many problems as you can together with your group members. Towards the end of
lecture your group will be asked to present problems correctly to receive classwork points.

1. Determine whether the following relations represent a function. If so, find the domain and
   range. If not, state why.

   (a) $\{(-9, -4), (9, -2), (5, 5), (-2, -2)\}$

   (b) $\{(-9, -4), (-9, 2), (-5, 5), (2, -2)\}$

   (c) $\{(-9, -5), (9, -2), (5, 5), (-5, -2)\}$

   (d) $\{(-9, -4), (9, -2), (-5, 5), (-5, -2)\}$

   (e) $\{(-9, -4), (9, -2), (5, -4), (-2, -2)\}$

2. Determine whether the following equations define y as a function of x.

   (a) $x^2 + y = 100$

   (b) $x = y^2$

   (c) $x^2 + y^2 = 9$

   (d) $\sqrt{x} + 2y = 1$

   (e) $y^3 = x$

3. Evaluate the function $f(x) = 8x + 6$ at the given values of the independent variable and
   simplify.

   (a) $f(7)$ and $f(x + 2)$

   (b) $f(5)$ and $f(x + 4)$

   (c) $f(-2)$ and $f(-x)$

   (d) $f(x + 2) - f(x)$

   (e) $f(4)$ and $f(x^2)$

4. Graph the given functions, f and g, in the same rectangular coordinate system. Then
   describe how the graph of g is related to the graph of f.

   (a) $f(x) = x$ and $g(x) = x + 6$
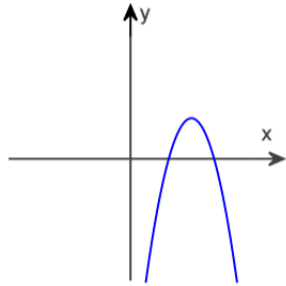
   (b) $f(x) = x$ and $g(x) = x - 2$

   (c) $f(x) = -x$ and $g(x) = -x + 3$

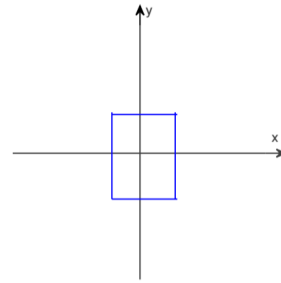   (d) $f(x) = -x$ and $g(x) = -x - 1$

   (e) $f(x) = x + 1$ and $g(x) = x - 1$

5. Use the vertical line test to determine if y is a function of x in the graph.
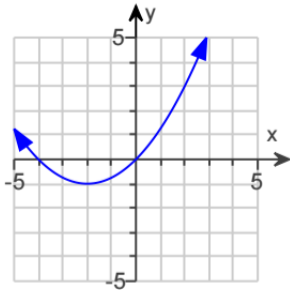
(a)

(b)

6. Consider the following graph.

(a) Determine the functions domain and range.

(b) Determine the x and y intercepts, if any.

(c) What is $f(2)$ and $f(-2)$?