Name: _____

Score: _____ /15
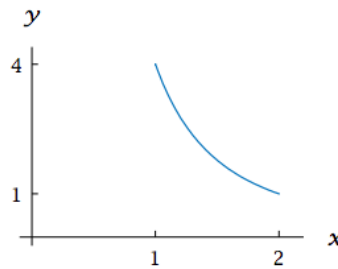
Worksheet 5 (Due Thurs, May 15)

Math 1060Q – Summer 2014

Professor Hohn

You must show all of your work to receive full credit!

1. The function f below is defined by $f(x) = \dfrac{4}{x^2}$ where the domain of f is $[1, 2]$ and the range of f is $[1, 4]$.

(a) Find a formula for g where the graph of g is obtained by shifting the graph of f up 3 units. Determine the domain and range of g and sketch it below.

(b) Find a formula for g where the graph of g is obtained by shifting the graph of f down 2 units. Determine the domain and range of g and sketch it below.

(c) Find a formula for g where the graph of g is obtained by vertically stretching the graph of f by a factor of 3. Determine the domain and range of g and sketch it below.

(d) Find a formula for g where the graph of g is obtained by shifting the graph of f to the left 5 units. Determine the domain and range of g and sketch it below.

(e) Find a formula for g where the graph of g is obtained by shifting the graph of f to the right 1 unit. Determine the domain and range of g and sketch it below.

(f) Find a formula for g where the graph of g is obtained by horizontally stretching the graph of f by a factor of 2. Determine the domain and range of g and sketch it below.

2. Let $f(x)$ be the function defined by the graph below. Notice that the domain is $[1, 5]$ and the range is $[1, 3]$.
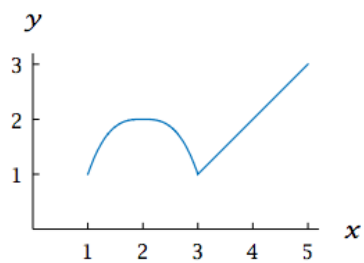
(a) Suppose $g(x) = f(x) + 1$. Determine the domain and range of g and sketch g below.

(b) Suppose $g(x) = f(x) - 3$. Determine the domain and range of g and sketch g below.

(c) Suppose $g(x) = f(x - 1)$. Determine the domain and range of g and sketch g below.

(d) Suppose $g(x) = f(x - 3)$. Determine the domain and range of g and sketch g below.

(e) Suppose $g(x) = 2f(x)$. Determine the domain and range of g and sketch g below.

(f) Suppose $g(x) = f(2x)$. Determine the domain and range of g and sketch g below.

(g) Suppose $g(x) = -f(x + 1)$. Determine the domain and range of g and sketch g below.

(h) Suppose $g(x) = 3f(x) - 1$. Determine the domain and range of g and sketch g below.

(i) Suppose $g(x) = 2f(\frac{x}{2} + 1) - 1$. Determine the domain and range of g and sketch g below.