Math 126 Name_____
Exam 3
Spring 2015 **Show All Work**

1) If $f(x) = 3x - x^2$ what is $f(x-1)$?

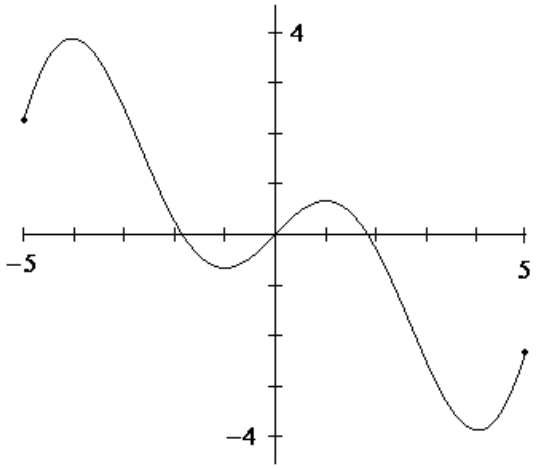
2) If $f(x) = \frac{x-3}{x-4}$

a) What is the domain of f(x)

b) What are its x and y intercepts?

c) If f(x) even, odd, both or neither?

3) Given the graph of $g(x)$ on the right.



a) What kind of symmetry does it have?

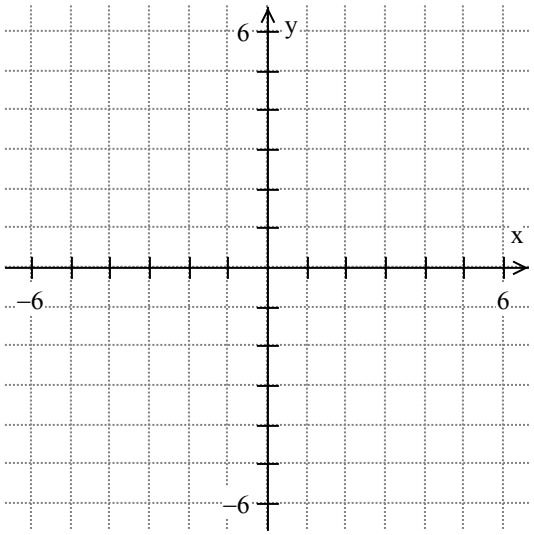
b) On what intervals is it decreasing?

c) List the x coordinate(s) of the local maximum(s).

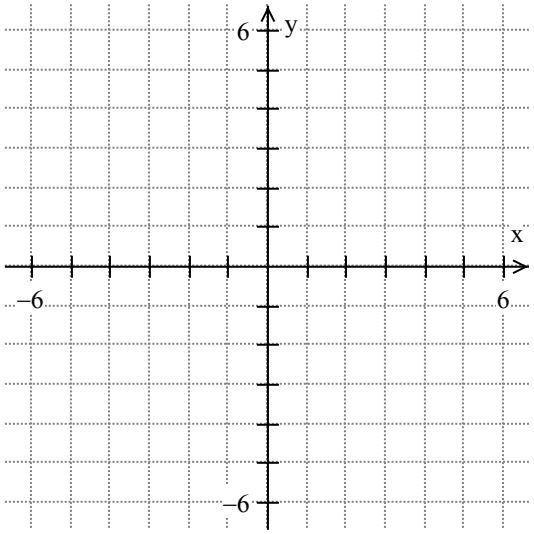
d) What is the domain of g(x).

4) Graph the following functions using the techniques of shifting, compressing, stretching, and/or reflecting. Start with the graph of the basic function and show all stages.

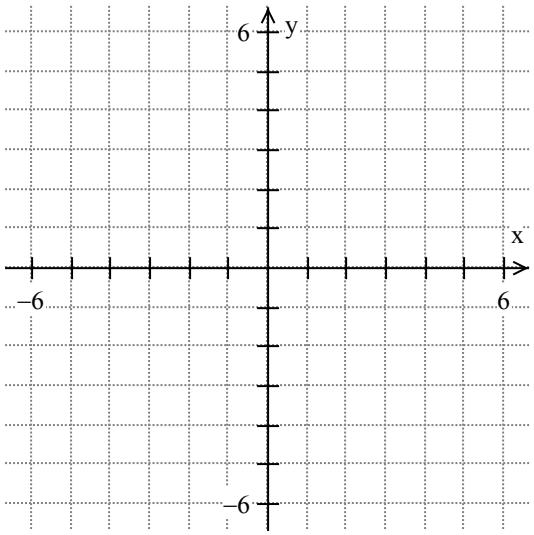
a) $f(x) = -|x| + 2$



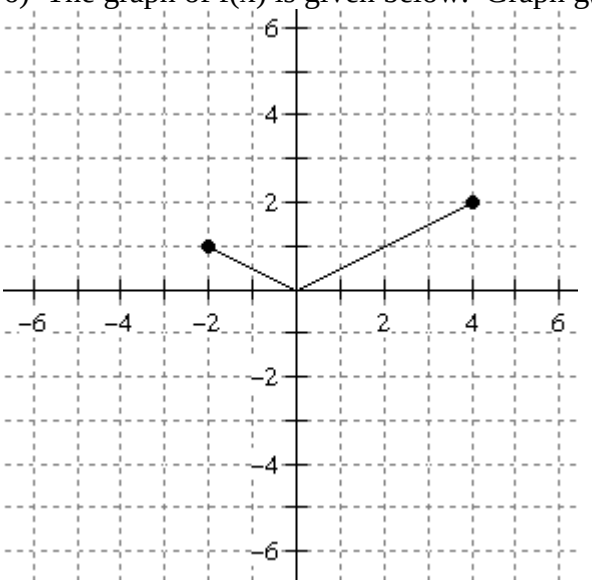
b) $g(x) = \frac{1}{x-2}$

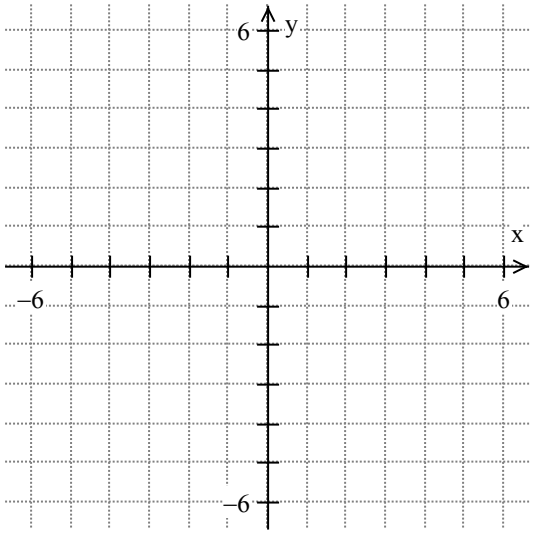


5) Graph $f(x) = \begin{cases} 2x & if\ x < 0 \\ x + 1 & if\ x \geq 0 \end{cases}$



6) The graph of f(x) is given below. Graph g(x) = 3f(x)





7) If f(x) = $\frac{1}{x}$ and g(x) = $\frac{1}{x-4}$

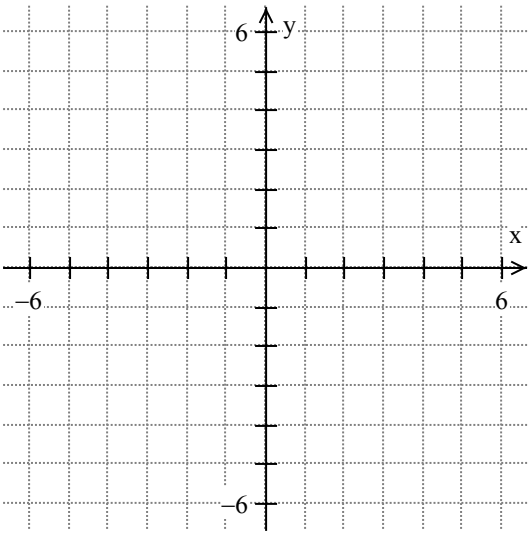
a) Find f ∘ g and its domain

b) Find g ∘ f and its domain.

c) Find $g^{-1}(x)$

8) Put the quadratic function below in standard form and graph. Find the vertex and intercepts, if any.

$f(x) = x^2 + 6x + 5$



9) The weekly profit from selling x Thingamajigs is given by $P(x) = 800x - 20x^2$

a) How many Thingamajigs must the company sell to maximize profit?

b) What is the maximum profit?