MATH 111 PRACTICE TEST 1 FALL 2009

0. (2 points if it is printed neatly) Name:_____

1. (4 points) Determine if the following equations define y as a function of x. You must justify your answers.

(a) $y^2 = 4x + 1$

(b) $y = x^2 - x - 1$

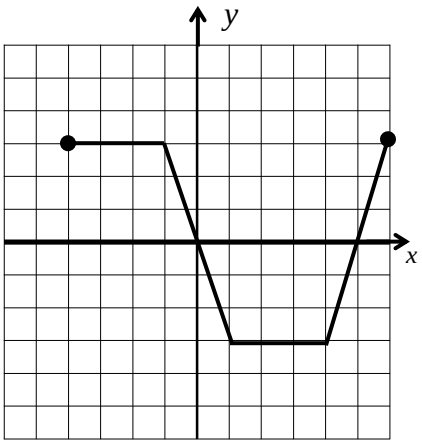
2. (4 points) Given $g(x) = x^2 - 3x$ evaluate and simplify each of the following:

(a) $g(2)$ (b) $g(-3)$ (c) $g(x - c)$

3. (3 points) Find values of x such that $f(x) = 0$ if $f(x) = 3x + 15$

4. (6 points) The following is the graph of a function *f*.

(a) State the domain and range and find the indicated function values.



Domain:

Range:

$f(-2)$ =

$f(1)$ =

$f(5)$ =

(b) Find the values of x such that $f(x) = 0$

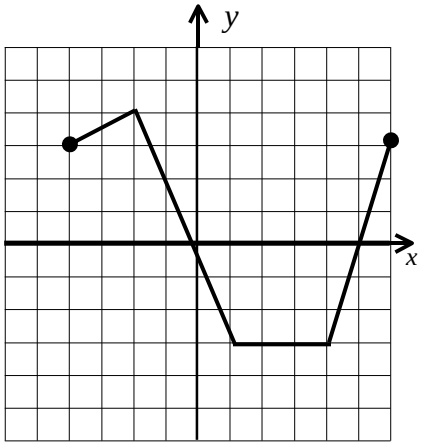
5. (6 points) Determine if the following functions are odd, even or neither.

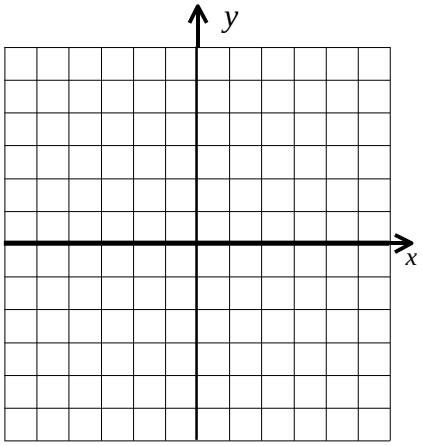
(a) $f(x) = x^3 + x + 7$

(b) $g(x) = -x^3 + x$

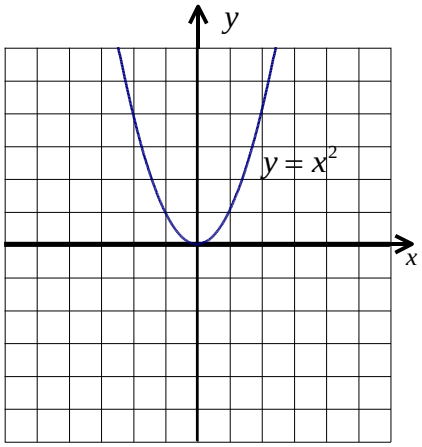
(c) $h(x) = x^4 + 4x^2 - 8$

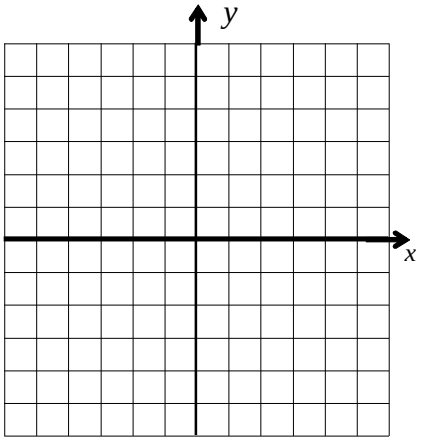
6. (5 points) The graph on the left is the graph of a function *f*. Sketch the graph of the function $G(x) = f(x+2) - 1$. State the operations you perform.



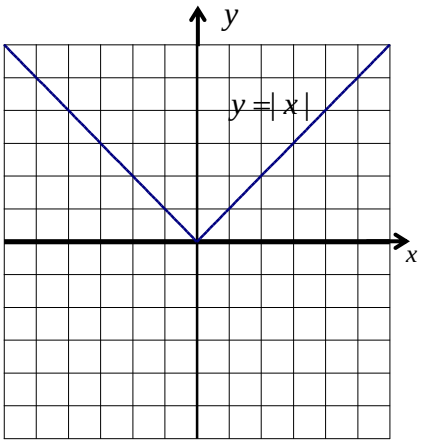


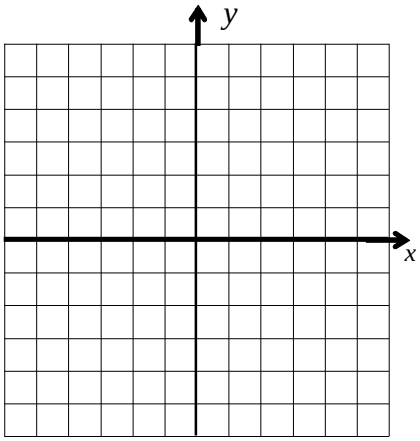
7. (5 points) Starting with the graph of $y = x^2$ graph $g(x) = \frac{1}{2}(x-2)^2 - 3$ using the techniques of shifting and stretching. **State clearly which operations you perform.**



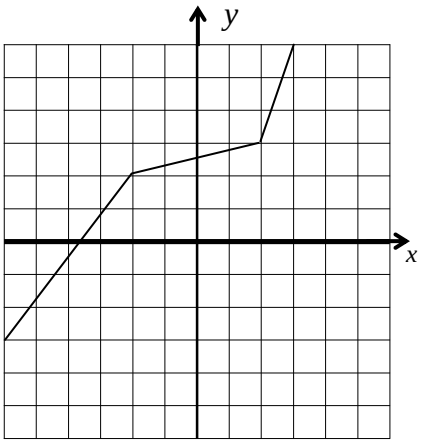


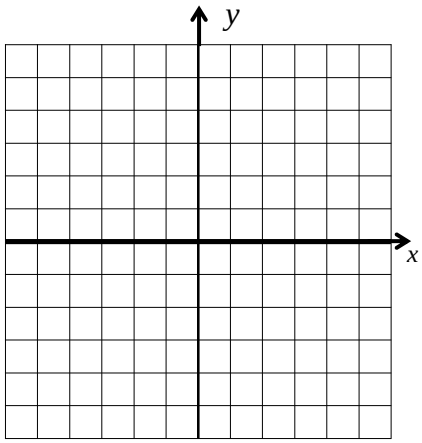
8. (5 points) Starting with the graph of $y = |x|$ graph $g(x) = -|x+1|+2$ using the techniques of shifting and stretching. **State clearly which operations you perform.**





9. (5 points) The graph on the left is the graph of a function *f*. Sketch the graph of f^{-1}





10. (5 points) Find the inverse of $f(x) = \dfrac{2x+3}{x+2}$