V2

1	2	3	4	5	6

Last Name:_____

First Name:_____

ID:_____ Section:____

Math 1051 Midterm #2. March 15, 2002

Attention! Please, note that this is the closed book test. You are not allowed to use graphing calculator. Simple calculators are allowed. Please, show all important steps in you solution but do not make your solution excessively long.

1. A circle has its center at the midpoint of the segment P_1P_2 and contains the origin. Find equation of the circle if

$$P_1 = (4, 9), \qquad P_2 = (-10, -1).$$

2. Find the function which is finally graphed after the following transformations are applied to the graph of $f(x) = \sqrt{x^3 + x}$. Write the intermediate result on each step.

a) Reflect about Y-axis;

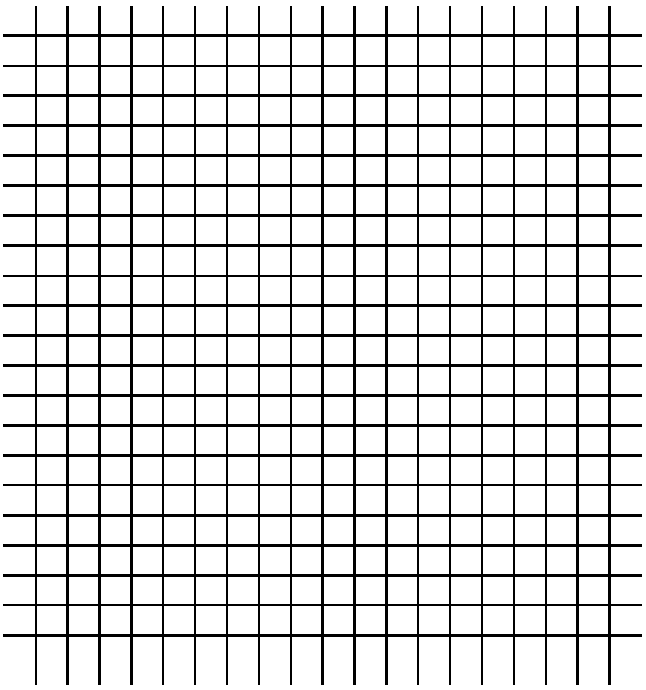
b) shift down 3 units;

c) shift right 2 units;

d) reflect about X-axis.

3. Graph the function using the techniques of shifting, stretching, compressing, or reflecting.

$$f(x) = x^2 + 8x - 1.$$



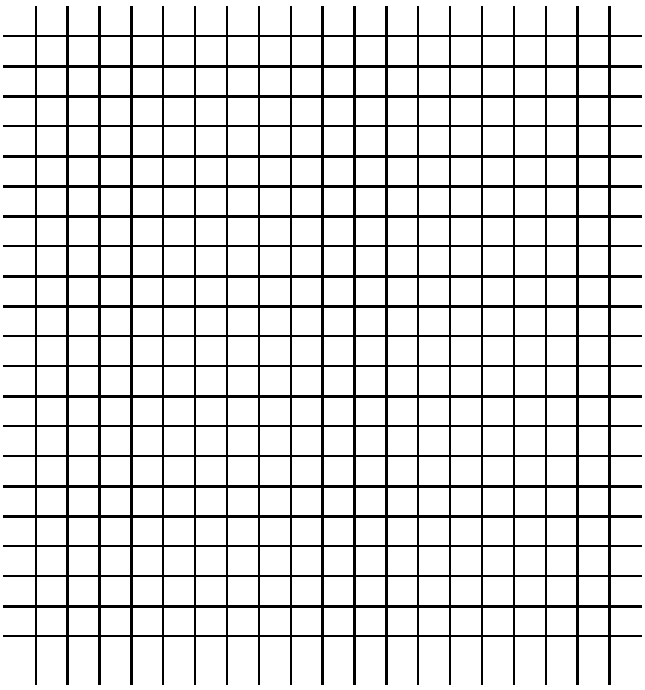
4. Find the composite function $f \circ g$; specify it's domain; find average rate of change from $x = -2$ to $x = 1$:

$$f(x) = \frac{1}{x-3}, \qquad g(x) = \sqrt{x+3}.$$

5. Give equation of the line perpendicular to the line

$$y = 4x + 2$$

containing point (8,-3).

6. Graph piecewise function

$$f(x) = \begin{cases} -(x+1)^2 + 2, & x < -1 \\ 1, & -1 \leq x \leq 0 \\ x, & x > 0. \end{cases}$$