

## Quiz5

October 26, 2006

Name: \_\_\_\_\_

Note: Each problem is worth 25 points, so the maximum grade you can get is 100 points. *Good Luck!!*

(1) Given  $f(x) = \sqrt{x}$ , shift 3 units to the left, stretch vertically by a factor of 5, and reflect in the x-axis. Write the equation for the final transformed graph.

(2) Find the maximum or minimum value of the function  $f(x) = 3 - x - \frac{1}{2}x^2$ .

(3) If a ball is thrown directly upward with a velocity of 40 ft/s, its height (in feet) after  $t$  seconds is given by  $y = 40t - 16t^2$ . What is the maximum height attained by the ball?

(4) Given  $f(x) = x^2$ ,  $g(x) = \sqrt{x-3}$ , find the functions  $f \circ g$ ,  $g \circ f$ , and  $f \circ f$  and their domains.