Exam 2 Sample Short Answer Questions

Section 3.3

- 1. Given the function $f(x) = 2x^2 2x 7$, find the average rate of change of f on [x, x + h].
- 2. Find the average rate of change of the function $f(x) = 5x^2 3$ between (1,2) and (4,77).
- 3. Given the function f(x) = 2x + 2, calculate $\frac{f(a+h)-f(a)}{h}$.

Section 4.1

- 4. Find y if the line through (4,4) and (-3, y) has slope $m = -\frac{5}{7}$.
- 5. Write the equation of the line that contains the two points P = (-3, -2) and Q = (8, 2).

Section 4.2

- 6. A total of \$2,000 was invested, part of it at 5% interest and the remainder at 9%. If the total yearly interest amount is \$130, how much was invested at 5%?
- 7. Stan and Hilda can mow the lawn in 45 min if they work together. If Hilda works twice as fast as Stan, how long would it take Stan to mow the lawn alone?

Section 3.7

- 8. If $f(x) = \frac{2x-9}{5x+7}$, find and simplify $f^{-1}(x)$.
- 9. Let $f(x) = \sqrt{x-3}$ and $g(x) = x^2 + 3$. Evaluate each of the following:
 - a. f(g(4))
 - b. *f*(*g*(11))
 - c. g(f(11))
 - d. f(g(-5))
 - e. g(f(-5))
- 10. Are the following statements true or false for general functions?
 - a. Given two functions f(x) and g(x), then f(g(x)) = g(f(x))
 - b. Given two functions f(x) and g(x), then f(g(x)) = g(f(x)) only if f and g are inverses of each other.

Section 5.1

11. Convert the quadratic function $f(x) = 4x^2 + 16x + 19$ into vertex form, and use the result to find the domain and range of f.