Test 1  MAT 190  Summer 2007  Name ______________________
Simplify all answers and show your work!

1. The domain of a relation tells what values ______ can be.  
2. “f(x)” is another name for _______.
3. The range of a relation tells what values ______ can be.  
4. Write “f(4) = –5” as an ordered pair. _______
5. What numbers can we not take the square root of in the real numbers? ________________
6. What number can we not divide by? __________________.
7. If a continuous function has no restrictions on its domain, what is its domain? ________________
8. In a word problem, the “average rate of change” is the same as the __________ and the starting point is the same as the ________________________.

9. Given the relation {(1, -3), (4, 0), (-3, -5), (6, 2)}, find the following:
   a) Domain: ________________  b) Range: ________________
      c) Maximum of x-values: ______  d) Minimum of x-values: ______
      e) Maximum of y-values: ______  f) Minimum of y-values: ______
      g) Make a line graph of the relation on the grid to the right.

10. Given f(x) = 2x + 3:
    a) Find f(-4)   b) Find f(7)                 c) Find f(0)

11. Is the relation {(1.8, 3), (-5.7, -9.2), (-1.8, 3)} a function? Why or why not? _________________________
    _______________________________________________________________________________________

12. Graph the line given by \( y = \frac{3}{4} x + 2 \)

13. Find the domain of the following functions:
   a) \( f(x) = \frac{7}{x - 1} \)
   b) \( f(x) = \sqrt{x + 4} \)
14. Graph the line given by $2x + 3y = 12$

15. Find the slope of the following lines:
   a) $y = \frac{2}{3}x - 7$
   b) $3x - 5y = 20$
   c) Passing through $(2, 6)$ and $(-4, -1)$

16. Find the equation of the line having a slope of $\frac{6}{5}$ and passing through the point $(0, 3)$.

17. Given the graph of the line below, find the following. (Assume each tick mark is “1”.)
   a. $\Delta x$: _______  b. $\Delta y$: ______
   c. The slope of the line _______  d. The y-intercept of the line _______
   e. The equation of the line _______________.
   f. A point on the line other than the y-intercept. ______

18. The joiner’s fee for an individual to join the local YMCA is $75. In addition, the cost each month is $40 per month to keep the membership current. When a person joins, the first month’s payment is charged along with the joiner’s fee. Let $f(x)$ represent the total amount of money an individual has paid to the YMCA after “x” months of membership.
   a) How much will a person have paid for membership over the course of a year? (After 12 months)
   b) Find the slope of this line $f(x)$.
   c) Find the y-intercept of $f(x)$.
   d) Find the equation $f(x)$.

19. Determine whether the data in the table below represents a linear or a nonlinear function.

20. Find the y-intercepts of the following lines:
   a) $y = -\frac{7}{8}x + 4$
   b) $4x - 5y = 20$