Simplify all answers and show your work!

1. “f(x)” is another name for __________.  
2. The domain of a relation tells what values ______ can be.  
3. What number can we not divide by? ______.  
4. The range of a relation tells what values ______ can be.  
5. What numbers can we not take the square root of in the real numbers? _______________  
6. In a word problem, the “average rate of change” is the same as the __________ and the starting point is the same as the ___________________________.  
7. Write “f(-2) = –8” as an ordered pair. ________  
8. Given U = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}, A = {1, 2, 4, 5, 9} and B = {2, 3, 4, 6, 7}, find the following: 
   a) Draw the Venn diagram 
   b) A ∩ B 
   c) A ∪ B 

9. Given the relation {(3, 1), (1, -4), (-2, -5), (-5, 6)}, 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. Is the relation {(3, 5), (4, 8), (-3, 5), (2.1, 6)} a function? Why or why not? ________________  

11. Graph the line given by \( y = -\frac{1}{3} x + 4 \)  

12. Find the slope of the following lines: 
   a) \( y = -5 - 7.2x \)  
   b) \( f(x) = 7x - 1.4 \)  
   c) \( 4x - 3y = 13 \)  
   d) Passing through (2, 5) and (-1, 0).
13. Find the domains of the functions below:
   a) \( f(x) = \sqrt{x + 3} \)  
   b) \( f(x) = 3x - 8 \)  
   c) \( f(x) = \frac{8}{x - 6} \)

14. Find the equation of the line with the following slopes and through the given points:
   a) \( m = -8.5, \ (0, 7.2) \)  
   b) \( m = \frac{2}{9}, \ (0, 4.9) \)  
   c) \( m = 5, \ (0, -\frac{7}{4}) \)

15. 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. ________

16. Graph the line given by \( y = \frac{2}{3}x - 3 \)

17. Find the y-intercepts of the following lines:
   a) \( y = -\frac{4}{7}x - 2.4 \)  
   b) \( 7x + 8y = 56 \)  
   c) \( 2x = 4y + 8 \)

18. Given \( f(x) = 3x - 11 \):
   a) Find \( f(1) \)  
   b) Find \( f(0) \)  
   c) Find \( f(-5) \)

19. Write the following in slope-intercept form.
   a) \( 4x + 5y = 20 \)  
   b) \( 3x - 8y = 24 \)  
   c) \( 7x + 2y = 21 \)