Instructions: To get full credit you must: (1) attempt and (2) traffic light all problems. If you get stuck in a problem and can't proceed, explain where you are stuck. Be sure to answer the homework on $8\frac{1}{2}$ x 11 white paper, using only one side of the paper. Please paperclip your pages together.

1. Answer the following questions about traffic lights.

   a. How do you like the traffic lights?

   b. Do you feel like the traffic lights help? How?

   c. What would you suggest to make better use of the traffic lights in this course?

2. Look at your reflection logs from unit 2 (starting on 2/13) and find two lessons that you marked as yellow or red.

   a. State what the lesson was the day, and what you were confused about.

   b. Do you understand the lesson now? If so, write a few sentences that you could've explained to yourself to better understand it. If not, what will you do to learn it before the test?

3. Four classmates were asked *can a single line have multiple equations?*. Their answers are given below.

   I. You can't have different equations, because there is only one slope.

   II. You can add any number to both sides, so there are lots of different equations.

   III. A line can have many different equations.

   IV. A single line can have any number of equations because a line can have whatever slope you need.

   Answer the following questions about their explanations.

   a. Order these explanations from best (1) to worst (4). Explain why you ordered the explanations how you did.

   b. Which of these equations are incorrect? Explain what is incorrect in them.

   c. Write your own answer to the question *can a single line have multiple equations?*.

4. Put the equation for the line
$$\frac{1}{3}x + \frac{2}{5}y = 1$$
   in slope-intercept form, and sketch a graph.

5. Put the equation for the line
$$y - 1 = 2(x + 3)$$
   into standard form, and find the x-intercept and y-intercept (if you don't know what standard form is, read the book!).

6. Suppose you know that the points $(-4, 4)$ and $(2, -2)$ are on a line. Is this enough information to find the equation of the line? If so, find it. If not, explain why not.

7. Suppose you have the line $y = 2x + 1$.

a. Sketch a graph of this line.

b. How would you have to change the equation to move the line up by 2? Sketch the graph to check your work.

c. How would you have to change the equation to triple the slope? Sketch the graph to check your work.

d. What would happen if you multiplied both sides of the equation by 4? Explain why.

8. Why does knowing two points on a line tell you everything about that line?

9. Will two lines with the same slope ever intersect? Explain why or why not.

10. Will two lines with different slopes always intersect? Explain why or why not.

11. Section 5.1 #1

12. Section 5.1 #3

13. Section 5.1 #13

14. Section 5.1 #53

15. Section 5.2 #7

16. Section 5.2 #33

17. Section 5.3 #2

18. Section 5.3 #11

19. Section 5.3 #47

20. Section 5.3 #51

21. Section 5.4 #5

22. Section 5.4 #12

23. Section 5.4 #24

24. WolframAlpha is a computational engine (i.e. really fancy calculator) that can be accessed for free online, at http://www.wolframalpha.com/.

(a) Type 'slope-intercept form' into the search box (everything in-between the '', but not the '' themselves). Write down what it says here.

(b) Type '2y + 15x = 12' into the search box. What comes up? What is the slope-intercept form for this line?

(c) Type '2x + 1 = 5' into the search box. There is a graph of two lines intersecting at the point $(2, 5)$. What does this graph mean?

(d) Choose your own search term that could help you solve a problem we have worked on in this class. Write down what your search term was, and explain the results. (If you don't get any meaningful results, choose a new search term. Do *not* tell me that it didn't work. It's your job to make it work.)

(e) How might you use WolframAlpha to help you in the class?