Mth 95 Exam 1 ***Franz Helfenstein*** **Name**

Write neatly in an organized fashion. Circle/box-in your answers. Write answers as fractions or integers where possible. If you need more space make a note but write your answers on this paper. 100 pts.

1) Outline the step by step procedure we've used in class to solve linear equations. (4 pts)

Solve each equation using Algebra. To receive full credit, you must show the solution process not merely the answer. Check your Answers! (5 pts each)

2) $43 + 3(19x - 7) = -12$

3) $3(2x - 9) + 2x - 7 = 3(5x - 7) - (x - 5)$

4) $2.34x + 5.92 = 7.35x - 5.51$ (give your answer accurate to 2 decimal places i.e. #.##)

5) $\frac{3x}{2} + \frac{2}{3} = x + 1$

6) $\frac{5x + 3}{2} = \frac{4 - 2x}{3} + 4$

7) $\frac{4x + 3}{2} + 8 = 12 - 5\frac{4 - 9x}{3}$

8) Solve for y: $13 - 2x - 3y = 5x + 6y - 11$

9) Solve for y: $6\frac{2x + 3y}{5} = 12 + \frac{2x + 3y}{4}$

10) Solve for y: $ax + by + c = 4x - 7y + 2$

11) Using algebra (not regression) find the equation of the line through (8, -15) & (-8, -21)
Show your work! (5 pts)

12) Find the equation of the line parallel to $3x + 4y = 24$ but passing through (-5, 5) (5 pts)

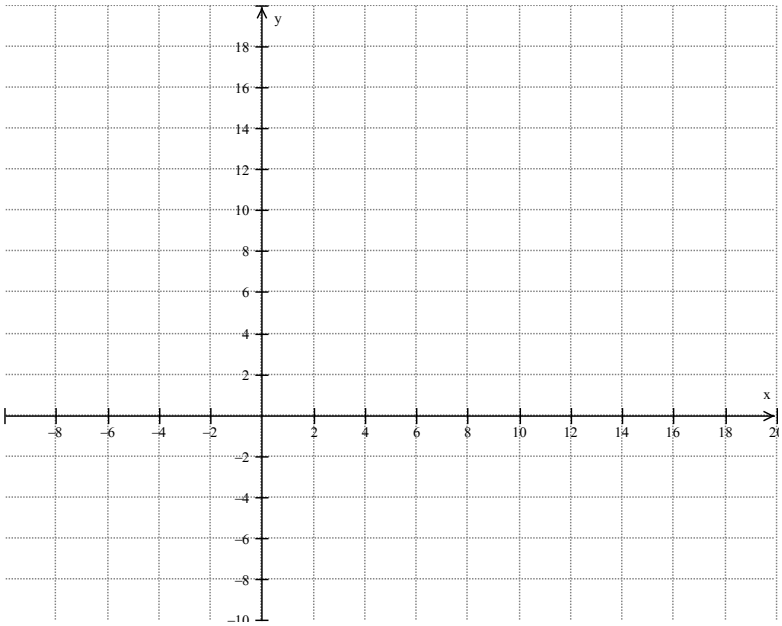
13) Graph and label each line <u>in this window</u>. For full credit, the lines must correctly cross the <u>window boundary</u>. (4 pts each)

(a) $y = \frac{2}{3}x - 6$

(b) $18x + 15y = 270$

(c) $y = -2x + 40$

(d) $y = 5$



14) Use your calculator to find the intersection between $y = -0.38x + 100$ & $y = 1.57x - 100$. (5 pts)

15) Gina decides to open a flower delivery service for Valentine's Day. She buys a delivery bike for $400. She buys bouquets for $10 each. She plans to charge $25 for each bouquet she delivers. Let x = bouquets, y = $. (2 pts each)

(a) Write a linear equation for Gina's <u>expenses</u>.

(b) Write a linear equation for Gina's <u>revenues</u>.

(c) Write a linear equation for Gina's <u>profits.</u>

(d) Graph expenses and revenues. What is the interpretation of these lines' intersection?

(e) Determine how many bouquets Gina must sell to breakeven.

(f) Determine how much she will earn if she sells 68 bouquets.

(g) How many bouquets must she sell to earn $1,000?

16) Fill in the chart based on the line with a slope of 0.02 and y-intercepts of 1.60. (2 pts each)

x	y
0	1.60
12.5	
	12.5