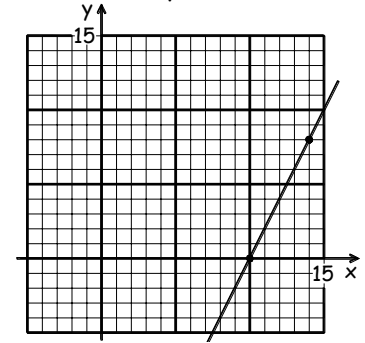


**Mth 111 Lab #1 Franz Helfenstein NAME**

This lab is intended to review some of the things we have done so far. You are encouraged to work together. As necessary, attach additional paper but put your final answer on this paper. Your work will be graded on completeness, neatness, accuracy and punctuality. You must show your work! (10 pts)

1) Graph in the window shown. Do not use a different window.

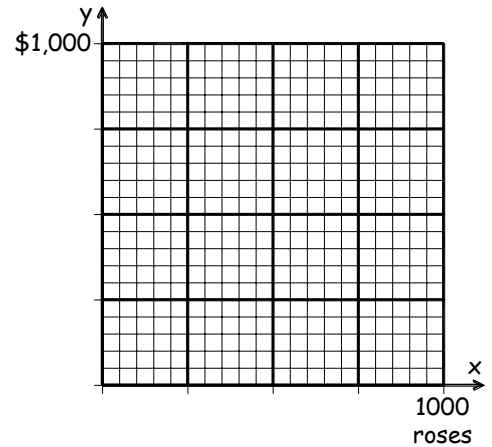
(a)  $3x + 5y = 30$       (b)  $y = (\frac{3}{4})x - 4$       (c)  $y = -4x + 35$



2) Give the equation of the graph shown in S-I form.

3) Jo's Boutique bought a delivery bike for \$450 and spends \$5 for each dozen roses. Let  $x$  = roses. This leads to the expense equation  $E(x) = (5/12)x + 450$ . Jo sells the roses for \$1.50 ea. This leads to the revenue equation  $R(x) = 1.5x$ .

- (a) Graph and label expenses and revenues.
- (b) Find the number of roses Jo needs to sell to breakeven.



4) Suppose Jo can buy a carton of 1,000 roses for \$375. Note: She must spend the full \$375.

(a) How many would she need to sell now to breakeven? Jo still needs to buy the bike.

(b) Why must she sell more roses to breakeven when the roses are 'cheaper'?

5) A 25 mile section of an old road is to be upgraded. The county can repave for \$80,000/mi. Due to limited funds, part of the old road will only be chip-sealed which only costs \$16,000/mile.

(a) Write an equation for the cost of the project as a function of  $x$  where  $x$  = amount repaved.

(b) Assuming the county has \$1.5 million for the project, how much can be paved? (solve for  $x$ )

6) An instrument has the following readings. Assuming a linear relationship,

(a) use the first two readings to find  $y = mx + b$ .

(b) Now use your function to fill in the remaining table.

Volts (x)	Gap (y)
-0.040	0.0030
0.020	0.0015
0.000	
	0.000
0.010	
	0.00125

**Solve the following equations**

7)  $20 - 10(3x - 5) + 12 = 8(x + 91)$

8)  $\frac{3-x}{2} + \frac{2}{3} = 2 - \frac{3 \cdot (2x-5)}{2}$

9) Solve for y:  $10 - \frac{3y-5x}{2} = \frac{4x+2y}{3}$

10) Solve for x:  $3x^2 - 5x = 2$

**BONUS**

Solve for x in terms of k:  $(x-3)(2x+5) = x-15+k$  Hint: Set up and use QF