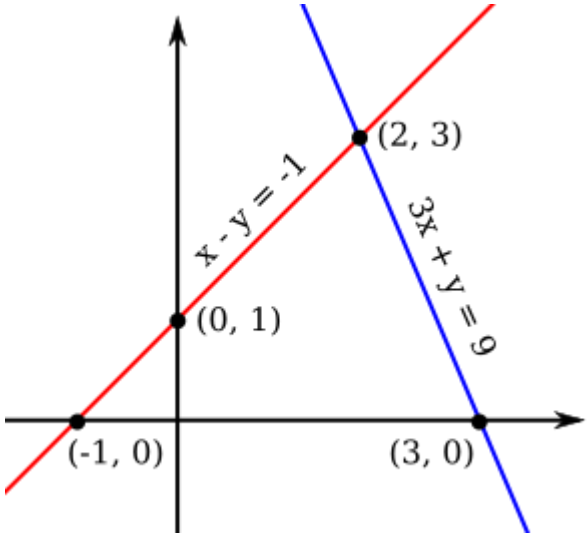
MATH 100 QUESTIONS FOR CLASS DISCUSSION 1 OCTOBER 2019

LINEAR FUNCTIONS AND SYSTEMS OF LINEAR FUNCTIONS



A. 1. Write an equation in point-slope form for the line. The point is provided in the form (x,y). Without doing any calculations, what are the values of m, x_0, and y_0 in the point-slope form?

Find the equation of the line passing through (6,−6) and parallel to y=65(x+10)

2. Write the linear equation in slope-intercept form y=b+mx. What are the values of m and b?

x/100+y/200=1

3. Write the following equation in standard form. x = 4y - 9

4. Write an equation in point-slope form for the line.

through (3,6) and (4,1)

5. Write an equation in point-slope form for the line. The point is provided in the form (x,y). Without doing any calculations, what are the values of m, x_0, and y_0 in the point-slope form?

y = (7/6) x + 10

6. Write an equation in point-slope form for the line. The point is provided in the form (x,y). Without doing any calculations, what are the values of m, x0, and y0 in the point-slope form?

Through (7,−6) and is parallel to y=8(x+10)

7. Solve the system of equations graphically.

{y=6x-7y=3x+2

Round your answers to one decimal place.

8. Find a possible equation for the line that is perpendicular to the graph of 5x - 3y=15 if the two lines intersect at x=15. Give an exact answer.

Could the table represent a linear function?

x	9	11	13	15	17
y	44	47	50	53	56

9. A gram of fat contains 9 dietary calories, whereas a gram of carbohydrates contains only 4.[1]
(a) Write an equation relating the amount f, in grams, of fat and the amount c, in grams, of carbohydrates that one can eat if limited to a total of 2200 calories/day.
(b) The USDA recommends that calories from fat should not exceed 30% of all calories. What does this tell you about f?

Round your answer to the nearest integer.

A 2200-calorie diet should include no more than about _____ grams of fat.

10. Without solving the equations, decide how many solutions the system has.

5y=-4+x
x=4+5y

11. Solve the system of equations.

(a) Graphically

(b) analytically

x+y=5

x-y=13

12. Solve the system of equations.

$7x+5y=-111$

$x+8y=-1$

B) Solve each of the following pairs of linear equations using the method of *substitution*. *Check* your answers. Sketch the lines.

1. $y = 3x - 5$

   $y = -4x + 9$

2. $2x + y = 11$

   $x + 3y = 18$

3. $3x - y = 10$

   $5x - 9x = -20$

C) * Solve each of the following systems of linear equations by Gaussian elimination. Determine which are *inconsistent* and which are *dependent*.

Check your answers if time permits.

1. $7x + 2y = 47$

   $5x - 4y = 1$

2. $2x - 5y = 1$

   $7x + 3y = 24$

3. $5x - 10y = 3$

   $x - 2y = 8$

4. $3x + 4y = 10$

   $4x + y = 9$

5. $x + 2y = 13$

   $3x + 4y = 14$

6. $4x + 7y = 29$

   $x + 3y = 11$

7. $15x + 77y = 92$

   $55x - 33y = 22$

8. $3x = 7y$

$12y = 5x - 1$

9. $x - y = 5$

   $x/4 - y/5 = 2$

10. $5(x + 2y) - (3x + 11y) = 14$

    $7x - 9y - 3(x - 4y) = 38$

11. $x/2 - y/5 = 4$

    $x/7 - y/15 = 3$

12. $3x - y = 8$

    $33x - 11y = 88$

* Problems from Hall & Knight, Elementary Algebra (1896)

What is straight? A line can be straight, or a street, but the human heart, oh, no, it's curved like a road through mountains.

- Tennessee Williams