Name_____

Lines

Lecture 1

Find the equation of the line described. Please give answer in slope/intercept form

- 1. Find the equation of a line with slope = -3 and passes through (6, 4)
- 2. Find the equation of a line with slope = 5 and x intercept of 6
- 3. Find the equation of the line that passes through (5, 9) and (12, 2)
- 4. Find the equation of the line that passes through (5, 9) and (8, 9)
- 5. Find the equation of the line perpendicular to y = 2x 12 and passes through (6,-5)

Given triangle ABC with vertices A (2, 4), B (4, 0) and C (-3, -2) find the following:

- 6. Perimeter of the triangle.
- 7. Equation of the perpendicular bisector of \overline{AB} .
- 8. The equation of the altitude to $\overline{\text{BC}}$.
- 9. The length of the median \overline{AB} .
- 10. The equation of the median to \overline{AB} .

Graph the following by hand then check with a graphing calculator.

- 11. $y = \frac{1}{2}x 2$
- 12. 2x 3y = 6
- 13. y = 5

Note: If there is anything on this assignment that you do not remember (i.e. a definition, formula...) look it up! Use an old math book or the internet

Senior Analysis

Name _____

Systems

Lecture 2

Find the point of intersection of the following systems. You must use Cramer's Rule at least once. Check with your graphing calculator by using the *Calculate: Intersection* option.

1. $3x + 2y = 6$	2. $12x + 9y = 21$
5x - 4y = 16	8x - 6y = 2
3. $x + 2y = -12$	4. $19x + 7y = 6$
-3x + 6y = 11	4x - 10y = 7

5. Create two lines whose point of intersection is (7, 0). Careful – make sure they are not the same line!!

6. Parallelogram ABCD has, as vertices, the points A (12, 9), B (10, 3), C (2, -6) and D (4, 0). Find the equations of all four sides and explain why it is a parallelogram.

6. Find the distance from the line y = x - 4 to the point (-2, 4).

Senior Analysis

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3 by 3 Systems

Lecture 3

Solve using any method. Please use Cramer's Rule at least once.

1. 2x + 3y = 2 4x - 3y - 6z = 7 9y + 2z = 12. 3x - y + z = 8 2x + y - 3z = -18 2x + 2z = 103. $x + 3y - z = -\frac{2}{3}$ $9x - \frac{1}{2}y + 2z = -\frac{1}{2}$ 3x + 2y + z = 34. x + 2y - z = -6 2x + y - 2z = -6 $3x + 3y + \frac{1}{3}z = -2$

5. In a triangle, the largest angle is equal to the sum of the other two angles. Twice the smallest angle is 10° less than the middle angle. Find the measure for each angle.

Domain and Range

State domain

(1)
$$y = |2x|$$
 (2) $y = |2x-1|$

(3)
$$x = |3 - 2y|$$

 $(5) \quad y = \sqrt{3x - 1}$

$$(7) \quad y = \frac{2x}{\sqrt{x^2 - x - 6}}$$

$$(9) \quad y = \sqrt{\frac{2x}{x^2 - 2x - 8}}$$

$$(4) \quad x = \left| \frac{1}{2} y + 4 \right|$$

$$(6) \quad y = \frac{1}{\sqrt{3x - 1}}$$

$$(8) \quad y = \frac{2x}{\sqrt{64 - x^2}}$$

(10)
$$y = \sqrt{\frac{x^2 - 3x - 18}{x^2 - 64}}$$

Lecture 4

Name _____

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Lecture 4.5

Line of Best Fit

Go onto the internet and find a data table whose behavior could be linear. Suggested sites:

http://www.dlt.ncssm.edu/algebra/03 price of apples/Price of Apples.doc http://illuminations.nctm.org/lessons/9-12/explorelinear/activity1.htm http://illuminations.nctm.org/lessons/9-12/explorelinear/activity2.htm http://illuminations.nctm.org/lessons/9-12/explorelinear/activity3.htm (use "usual" or "maximum" – not both) http://illuminations.nctm.org/lessons/9-12/explorelinear/activity4.htm http://math.hws.edu/javamath/ryan/Regression.html

OR you may use one of your own. Print out the data (make sure you have written down the source!) and use this data for all 3 problems.

1. Plot all points on a graph paper and draw a best fit line. Calculate the equation of the line.