"Lord of the Flies" Summer Project
10th Grade
Pre-AP Geometry/Pre-AP Algebra II
Due Date: Second Day of School
2014 – 2015

- Choose an important character, scene or symbol from the story.
- Place all parts for your project in a folder with a clear cover.
- On the first page, use a piece of graph paper to neatly draw your picture using **only** straight lines.
- You must use at least 30 lines when drawing your picture. (You are welcome to use more than 30)
- No more than 25% (8 out of 30) of your lines can be horizontal or vertical.
- At least 75% (22 out of 30) of your lines must be diagonal.
- Be sure to draw and number the x and y axes.
- On page 2 of your project, neatly list the endpoints for each line. (Both of them)
- On page 3 of your project, neatly list the slope of each line.
- Show slope calculations on page 4 of your project.
- On page 5 of your project, list the y-intercept of each line.
- Show y-intercept calculations on page 6 of your project.
- On Page 7 of your project, list the equation of each and the restrictions showing which part of the line is part of your picture. (**Domain** for all lines except vertical lines. Vertical lines must show the **range** as the restrictions)

Grading Rubric

10 – 8	7 – 5	4 – 0
Drawing neatly on graph paper using at least 30 lines	Drawing done with 20 – 30 lines	Drawing done with less than 20 lines
Axis' are drawn and numbered	Axis' not numbered	No axis' present
75% or more of lines are diagonal	50% - 74% of lines are diagonal	Less than 50% of lines are diagonal
Drawing is neat, colorful, all lines are clearly numbered and picture is displayed on page 1.	Drawing could be neater. Color not used. All lines are not numbered. Not displayed on page 1	Sloppy graph. No color. Lines not correctly numbered. Not displayed on page 1.
At least 80% of endpoints neatly displayed on page 2	50% - 79% of endpoints displayed on page 2	Less than 50% of endpoints displayed on page 2
At least 80% of slopes correct and displayed neatly on page 3	50% - 79% of slopes correct and displayed neatly on page 3	Less than 50% of slopes correct and/or displayed on page 3

At least 80% of slopes calculations displayed on page 4	50% - 79% of slopes calculations displayed on page 4	Less than 50% of slopes calculations displayed on page 4
At least 80% of y-intercepts correct and displayed on page 5	50% - 79% of y-intercept correct and displayed on page 5	Less than 50% of y-intercept correct and/or displayed on page 5
At least 80% of y-intercepts calculations displayed on page 6	50% - 79% of y-intercept calculations displayed on page 6	Less than 50% of y-intercept calculations displayed on page 6
At least 80% of the equations correct and displayed on page 7	50% - 79% of equations correctly displayed on page 7	Less than 50% of equations correctly displayed on page 7

Notes:

- Given two points of a line, you can find the slope of the line using the slope formula below:

  Two points: (x_1, y_1) (x_2, y_2)

  Slope (m) = $\frac{y_2 - y_1}{x_2 - x_1}$

- If you know the slope of a line and at least one point, you can find the equation of the line using the slope-intercept or point-slope form below:

  Slope-intercept form: $y = mx + b$

  Point-slope form: $y - y_1 = m(x - x_1)$

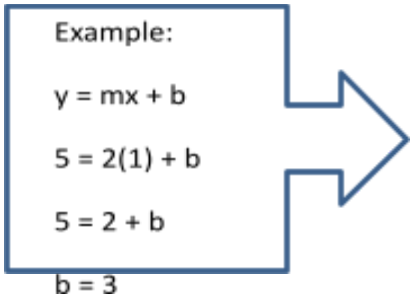
- Remember, all **vertical lines** have an undefined slope and equations are x = C, where C is a constant number. (C is the x-intercept and there is no y-intercept)
- Remember, all **horizontal lines** have a slope of zero and equations are y = C, where C is a constant number. (C is the y-intercept)

Example:

Line #3 – endpoints (1, 5) (3, 9) Page 2

Slope = $\frac{9-5}{3-1} = \frac{4}{2} = 2$ Slope (m) = 2 Page 3 & 4

Find the y-intercept (b) using **slope-intercept form**: m = 2 and point (1, 5)



Page 5 & 6

Find the y-intercept (b) using **point – slope form**: m = 2 and point (3, 9)

Example:

$y - 9 = 2(x - 3)$

$y - 9 = 2x - 6$

$y = 2x + 3$

$b = 3$

Page 5 & 6

Equation of the line that contains the points (1, 5) (3, 9) is **y = 2x + 3** Page 7