Algebra 1 Slope Project/Miss Sobanski

This project will be a picture you design, made of line segments. You will use your knowledge about slope and graphing lines so far to calculate the slope and the equation of the lines you draw. Your grade will be based on accuracy and neatness. The project is worth a total of 100 points and will be counted as a project grade. It will be graded using the rubric/checklist included on the back of this page. The Slope Project Rubric needs to attach with the project in order to receive credit.

You may do the project by yourself or with another partner of your choice. Work on this project will be done outside of class, and any assistance can be provided as needed (schedule a time to come see me!).

Directions:

1. Graph:
   1. Center and draw a large coordinate plane on a piece of graph paper.
   2. Label the x- and y-axes and scale the axes by ones.
   3. Draw a design or picture using at least 10 line segments. You may use only straight lines and use all four quadrants. You must have at least 2 vertical, 2 horizontal, 3 positive and 3 negative lines. Each line must have a different equation. No more than two lines may have the same slope. You may have more than 10 lines but you only need to calculate 10!
   4. Complete the design on your graph paper. Mount the design on of a poster board.
2. In a paragraph form, explain how to find the slope of any given line segment and the equation of a line from the following situations:
   1. From a graph
   2. From a table
   3. Given a slope and a point
   4. Given two points

These explanations should be done on a separate sheet of paper (neatly hand-written OR typed) and mounted to the poster board.

1. Highlight:
   1. A **negative** slope in Quadrant I
   2. A **undefined** slope in Quadrant II
   3. A **zero slope** in Quadrant III
   4. A **positive** slope in Quadrant IV
2. Slopes and equations for all 10 segments:
   1. List the four segments you have highlighted giving the coordinates of the endpoints.
   2. Find the slope of each these segments. Show your work.
      1. Find one using a slope triangle
      2. Find one using two points
      3. Find one by finding the rate of change
      4. Find one slope any way you would like
   3. Write the equation for each of these segments. Show your work.
3. Be creative and original with the layout of your poster. Your name and class period should be on the back of the poster.
4. Your project is due Friday, October 28th – This gives you a 12 days (including two weekends) to complete this project. Below is a list of dates you should use for reference to get this project done:

|  |  |  |
| --- | --- | --- |
| Date | Task | Completed |
| 10/20 | Project Assigned |  |
| 10/22 | Drawing Completed |  |
| 10/25 | Paragraph on how to find slope and equations of lines completed |  |
| 10/26 | Class Project Day |  |
| 10/27 | Highlight Slopes and find Slope and Equations of segments |  |
| 10/30 | Display Completed |  |
| 11/1 | Project Due |  |

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Grading Rubric

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Category | 4  Mastery | 3  Proficient | 2  Progressing | 1  Emerging | 0  Undetermined | Totals: |
| Step 1:  Graph | Graph is 90% to 100% correct, trimmed and mounted on a poster  (10 points) | Graph is 80% to 90% correct, trimmed and mounted on a poster  (8 points) | Graph is 60% to 80% correct and mounted on poster  (5 points) | Graph is 10% to 60% correct and mounted on poster  (2 points) | Graph is less than 10% correct  (0 points) |  |
| Step 2:  Paragraph | Slope and Equation explanations are answered in complete sentences  Explanations are detailed, clear and well thought – out. Demonstrates enhanced understanding  Used separate sheets of paper or written on poster  (30 points) | Slope and equation explanations are answered in complete sentences  Explanations are clear and well thought-out.  Demonstrates an understating of some topics  Used separate sheets of paper or written on poster  (25 points) | Slope and equation explanations are given  Explanations are a little difficult to understand.  Demonstrates a progressing level of understanding  (15 points) | Slope OR equation explanations are given  Explanations are quite difficult to understand. Demonstrates an emerging level of understanding  (10 points) | Questions are unanswered, are unreadable, or not appropriate  Explanations are unreadable, not appropriate or not included.  Demonstrates no understanding  (0 points) |  |
| Step 3:  Highlight Slopes | Four line segments are highlighted. The slopes are the correct slopes in the correct quadrant  Negative slope: Q1  Undefined slope Q2  Zero slope Q3  Positive slope Q4  (20 points) | Four line segments are highlighted. Slopes are correct but 2 slopes are not in the correct quadrant  (15 points) | Four line segments are highlighted. The slopes are correct but none in the correct quadrants  (10 points) | One to three line segments are highlighted  (5 points) | The slopes are not highlighted  (0 points) |  |
| Step 4:  Slope and Equations of Segments | Coordinates given for all segments.  Correct slope identified for each  Correct equation for 4 segments  (30 points) | Coordinates given for all segments  Correct slope identified for 3 segments  Correct equations for 3 segments  (25 points) | Coordinates of all segments listed  Correct slope identified for 2 segments  Correct equation for 2 segments  (15 points) | Coordinates of all segments listed  Correct slope identified for 1 segments  Correct equation for 1 segments  (10 points) | No coordinates, slopes, or equations of any segments listed  (0 points) |  |
| Step 5:  Display | Project is presented in a neat, clear, organized fashion that is easy to understand  Layout is creative and original  Name and class period are on the back of the poster  (10 points) | Project is presented in a neat, organized fashion that is usually easy to understand  Layout is creative and original  Name and class period are on the back of the poster  (8 points) | Project is presented in an organized fashion but may be hard to read at times  Layout is creative  Name and class period are on the back of the poster  (5 points) | Project is presented in a sloppy unorganized fashion. It is hard to know what information goes together.  Layout is not creative or original  Name and class period are on the back of the poster  (2 points) | The required components are turned in but not presented in any fashion  (0 points) |  |
| Extra | Exceptional creativity, originality  (10 points) |  |  |  |  |  |