Algebra 1 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Stained Glass Equation Project

**This is a summative assignment.**

Objective: Use linear equations and graphs to make and color a stained glass design. See

examples. **Use the recording sheet for all of your equations.**

Directions:

1. Write and graph four equations in slope-intercept form. **y = mx + b**

* All lines must have a y-intercept between 10 and -10.
* One line must have a positive slope less than one (a fraction).
* One line must have a positive slope greater than one.
* One line must have a negative slope less than -1.
* One line must have a negative slope between -1 and 0.

2. Write and graph two equations in point-slope form. 

* One line must have a positive slope with both coordinates negative: (-x, -y)
* One line must have a negative slope with both coordinates positive: (x, y)

3. Write and graph two equations in standard form. 

* One line must have a positive x-intercept and a positive y-intercept.
* One line must have a negative x-intercept and a negative y-intercept.

4. Write and graph two horizontal lines. **y = any constant**

* One line must cross the x-axis on the positive side.
* One line must cross the x-axis on the negative side.

5. Write and graph two vertical lines. **x = any constant**

* One line must cross the y-axis on the positive side.
* One line must cross the y-axis on the negative side.

Record each of your equations on the recording sheet provided. Include the slope of each line.

Graph the equations on the graph paper provided. Write the equation neatly by each line that you graph. When you are finished graphing the equations, you may use markers, colored pencils or crayons to color each section to create your stained glass window.

Stained Glass Project - Recording Sheet Name

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Equation** | **Form of the Equation** | **Slope** | **x-intercept** | **y-intercept** |
|  | Slope-Intercept (**y = mx + b)** |  |  |  |
|  | Slope-Intercept (**y = mx + b)** |  |  |  |
|  | Slope-Intercept (**y = mx + b)** |  |  |  |
|  | Slope-Intercept (**y = mx + b)** |  |  |  |
|  | Point-Slope |  |  |  |
|  | Point-Slope |  |  |  |
|  | Standard Form |  |  |  |
|  | Standard Form |  |  |  |
|  | Horizontal Line |  |  |  |
|  | Horizontal Line |  |  |  |
|  | Vertical Line |  |  |  |
|  | Vertical Line |  |  |  |

Stained Glass Project - Recording Sheet Name

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Equation** | **Form of the Equation** | **Slope** | **x-intercept** | **y-intercept** |
|  | Slope-Intercept (**y = mx + b)** |  |  |  |
|  | Slope-Intercept (**y = mx + b)** |  |  |  |
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|  | Slope-Intercept (**y = mx + b)** |  |  |  |
|  | Point-Slope |  |  |  |
|  | Point-Slope |  |  |  |
|  | Standard Form |  |  |  |
|  | Standard Form |  |  |  |
|  | Horizontal Line |  |  |  |
|  | Horizontal Line |  |  |  |
|  | Vertical Line |  |  |  |
|  | Vertical Line |  |  |  |