Mathematical Vocabulary

1. **Direct Variation/ Proportional Relationship**: equations with a *y-intercept of zero.* Can be expressed as *Positive Direct variation/Proportional Relationship (Example:* y= 3x)*,* or *Negative Direct variation/Proportional relationship (Example: y=-5x).*

**DO NOT SAY There is no Y-Intercept!!! THE Y-Intercept is Zero !!!!**

**Parallel Lines**- when lines are **parallel,** they have the **same slope/rate of change.**

**ONLY USED FOR SCATTER PLOTS!!**

1. **Correlation/Association**: only used to describe scatter plots, used for the “line of best fit”. Can be expressed as *Positive Correlation/Association, Negative Correlation/Association, or No correlation/Association.*
2. **Line of Best Fit:** used as a method to determine the correlation/association of a scatter plot. Can help determine whether or not a scatter plot has a *positive, negative, or no association/correlation.*

**Vocabulary used for Transformations**

1. **Rotations:** turn congruent. (Example: I *turned* the image 90O counterclockwise.)
2. **Reflections:** flip, mirror image, line of symmetry, opposite, horizontal/vertical axis, congruent. (Example: I *flipped* the image across the horizontal axis. OR I created a *mirror image* across the *line of symmetry*.)
3. **Translations:** slide, move, congruent. (Example: I *moved* the image 2 units left and 3 units up)
4. **Dilations:** multiply, scale factor, reduce, enlarge, similar. (Example: I *multiplied* the image by the *scale factor* to enlarge the size of the image.)

\*\*Remember: Rotations, Reflections, Translations remain **congruent.** Dilations produce images that are **similar** to the pre-image.

**Function/Non-Function**

1. **Function**- for every input there is **only one** output.
2. **Non**- **Function**- every input has **more than one** output.
3. **Vertical Line test**- a line **is a function** if a vertical line only crosses the image **once.**

**Vertical Line Test Is ONLY FOR FUNCTION!!**

**This Is OK!!**

|  |  |
| --- | --- |
| **Input (X)** | **Output (Y)** |
| **4** | **9** |
| **6** | **9** |
| **12** | **9** |

|  |  |
| --- | --- |
| **Input (X)** | **Output (Y)** |
| **-6** | **7** |
| **6** | **7** |
| **3** | **12** |

|  |  |
| --- | --- |
| **Input (X)** | **Output (Y)** |
| **-17** | **17** |
| **-15** | **15** |
| **-12** | **12** |

**THIS IS BAD!! THIS IS NOT A FUNCTION**

|  |  |
| --- | --- |
| **Input (X)** | **Output (Y)** |
| **21** | **14** |
| **21** | **18** |
| **-15** | **92** |
| **-15** | **-14** |

**Linear Equations**

**Equation of a line is Y=mX + b**

**m= slope/rate of change,**

**b= y-intercept,**

**x= x-value,**

**y= y-value**

1. **Linear**- a **table of values** is considered to be linear if:
   1. It has the **same rate of change/slope.**
   2. Forms a **straight line.**
2. **Nonlinear**- a **table of values** is considered to be nonlinear if:
   1. It **does not have the same rate of change/slope.**
   2. Does not form a straight line.

**\*\* Linear and Function Are two DIFFERENT THINGS!!\*\***