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|  | | **Math 8**  **Unit 6 Linear Models and Tables** | |
| Volume 1 Issue 6 | |  | |
| **References**  Georgia Math Grade 8 Volume 2:  Chapter 8  Pages 572 – 670  **Georgia Math Online:**  [www.connectED.mcgraw-hill.com](http://www.connectED.mcgraw-hill.com)  Links:  <http://regentsprep.org/REgents/math/ALGEBRA/AD1/qualquant.htm>  <http://onlinestatbook.com/chapter4/intro.html> | | Dear Parents Below you will find a list of concepts that your child will use and understand while completing Unit 6 Linear Functions. Also included are references, vocabulary and examples that will help you assist your child at home. Concepts Students will Use and Understand  * identify the rate of change and the initial value from tables, graphs, equations, or verbal descriptions * write a model for a linear function * sketch a graph when given a verbal description of a situation * analyze scatter plots * informally develop a line of best fit * use bivariate data to create graphs and linear models * recognize patterns and interpret bivariate data  Vocabulary  * **Model:** A mathematical representation of a process, device, or concept by means of a number of variables. * **Interpret**: To establish or explain the meaning or significance of something. * **Initial Value:** *y*-intercept. * **Qualitative Variables:** A variable whose values are not numerical. Examples include gender (male, female), paint color (red, black, blue), type of bird (cardinal, blue bird, owl), and etc. * **Linear:** A relationship or function that can be represented by a straight line. * **Non-linear:** A relationship which does not create a straight line. * **Slope:** The measure of steepness of a line. * **Rate of Change:** The ratio of the change in the output value and change in the input value of a function. * **Bivariate Data:** Two different response variables that are from the same population. This website has a good powerpoint (the 2nd one) that may help with the explanation.   <http://www.sophia.org/packets/bivariate-data-two-variables--2>   * **Quantitative Variables:** A variable whose values are numerical. Examples include height, temperature, weight, grades, and etc. * **Scatter Plot:** The graph of a collection of ordered pairs that allows an exploration of the relationship between the points. * **Line of Best Fit:** A straight line drawn through the center of a group of [data](http://www.investopedia.com/terms/l/line-of-best-fit.asp) points plotted on a scatter plot. * **Clustering:** The partitioning of a data set into subsets (clusters), so that the data in each subset (ideally) share some common trait - often similarity or proximity for some defined distance measure. * **Outlier:** An element of a data set that distinctly stands out from the rest of the data. | |
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|  | **Math 8 Unit 6 Practice Problems** | |
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| Formulas  **Slope** (m)  m=  **Slope-Intercept Form**  y = mx+b  **Y-intercept** (b); (0,b) | Example 1 The table shows the balance of a bank account on different days of the month. Find the rate of change during each time interval.  Example 2  Megan rolls a number cube and tosses a coin 200 times as part of an experiment. From her experiment, she records that a five was rolled 37 times and the coin landed on tails 107 times. On 88 occasions, neither a five was rolled nor did the coin land on heads. Complete the table.   |  |  |  |  | | --- | --- | --- | --- | |  | Five | Not a Five | **Total** | | Head |  |  |  | | Tail |  |  |  | | **Total** |  |  |  | | |
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|  | **Answer Key**  **Example 1**    Rate of changes: (results in a non-linear graph)  Day 1-6 = -53  Day 6-16 = -7.5  Day 16-22 = 0  Day 22-30 = -4.375  **Example 2**   |  |  |  |  | | --- | --- | --- | --- | |  | Five | Not a Five | Total | | Head | 18 | 75 | 93 | | Tail | 19 | 88 | 107 | | Total | 37 | 163 | 200 | | |
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