

Foundations of Math 2
Unit 2 Study Guide
Functions

Key Terms:

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|---------------------|------------------------|------------------------|----------------------|
| ○ Continuous Graph | ○ Dependent Variable | ○ Discrete Graph | ○ Domain |
| ○ Function Notation | ○ Horizontal Line Test | ○ Independent Variable | ○ Input |
| ○ Inverse Function | ○ Linear Function | ○ Nonlinear Function | ○ Output |
| ○ Range | ○ Reflection | ○ Relation | ○ Vertical Line Test |

Material by Subject:

2.1. Patterns and Linear Functions

- Understand what a dependent and independent variable are and how they relate to algebra.
- Be able to use patterns to determine the output from several given inputs.
- Understand that a function is a relationship with one output for each input (one-to-one)
- Know what a linear function is.
- Be able to determine if a relationship is a function based on the data points.
- Be able to determine the equation of a linear function from a set of data points.

2.2. Patterns and Nonlinear Functions

- Understand the difference between a linear function and a nonlinear function.
- Based on a set of data points, be able to determine whether a function is linear or nonlinear.
- Using patterns, be able to determine the equation of a nonlinear function.

2.3. Graphing Functions

- When graphing a rule, be able to choose input values, find corresponding output values, and make a table.
- Be able to plot the points in a table and draw the best-fit line.
- Understand the difference between a continuous graph and a discrete graph.
- Be able to determine which type of graph would best fit a situation (continuous or discrete).
- Be able to apply graphing functions to real-world situations (word problems).

2.4. Writing a Function Rule

- Be able to identify the independent and dependent variables from a real-world situation.
- Know to define variables for a situation.
- Use the relationship given to write the function rule.
- Once you have written the rule, be able to use it to evaluate for a specified input.

2.5. Determining if an Equation is a Function

- Understand how to use mapping to identify functions.
- Know what the vertical line test is and be able to use it to determine if a relation is a function.
- Be able to write an equation in function notation.
- Be able to find the domain and range of a relation, and understand how to determine what is reasonable for a function given a real-world situation.

2.6. Inverse Linear Functions

- Understand what an inverse function is (reflection over $y = x$)
- Be able to rearrange a two-variable linear equation to solve for one variable.
- Be able to use the horizontal line test to determine if a function's inverse is also a function.