Trigonometry

Section P-5 (Part 2): Functions

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**:

* Students will be able to write relationships between variables using function notation.
* Students will be able to determine whether an equation is a function.
* Students will be able to evaluate functions for a given number or expression.
* Students will be able to evaluate piecewise functions for a given number.

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| **Main Idea** | **Notes** |
| **Vocabulary:** | Representation:  It is common to represent functions as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in discrete mathematics.  In ALGEBRA, it is more common to represent them as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  Example:  y = x²  This represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as a function of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  The values that make up the set of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_values, ***x***, are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.    The values that make up the set of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ values, ***y***, are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| **Example 1:**  **Testing for Functions Represented by Equations**  **Vocabulary:**  **Example 2: Determine Whether Each Relation is a Function**  **Example 3: Evaluating a Function**  **Example 4:**  **Evaluating a Function**  **Example 5:**  **Evaluating a Function**  **Example 6:**  **Evaluating a Function**  **Example 7:**  **Evaluating a Function**  **Vocabulary:**  **Example 8: Evaluating a Piecewise Function**  **Homework:** | Do the following equations represent y as a function of x?   1. x² + y = 1 b) -x + y² = 1   ***y = 1 - x²***  This describes \_\_\_\_\_\_\_\_\_\_\_\_ as a function of \_\_\_\_\_\_\_\_\_\_\_\_\_\_.  Suppose we give it the name “***f***.”  Then you can use the function notation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  The symbol \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is read as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  or simply \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  Function Notation The Symbolic Form:  The symbol \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ corresponds to the ***y***-value for a given ***x***.  Therefore, you can write:  y = f(x)  (Now label all parts)   1. {(2, 3), (3, 0), (5, 2), (4, 3)} 2. {(4, 1), (5, 2), (5, 3), (6, 6), (1, 9)}   Given f(x) = 3x - 2, find   1. f(3) 2. f(-2)   Given *h*(z) = z2 - 4z + 9, find *h*(-3)  Given g(x) = x2 – 2, find g(4)  Given f(x) = 2x + 1, find -4[f(3) – f(1)].  Let s(x) = -x² + 4x +1, find s(x+2).  Up to now, we’ve been looking at functions represented by a single equation.  Functions can also be represented by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,  each corresponding to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  These are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ functions.  Example of a Piecewise Function:    Evaluate f(x) when x=0, x=2, x=4   1. x = 0 2. x = 2 3. x = 4 |