Function Table in Math: Definition, Rules & Examples

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Beautifully structured, analysed and explained. Easy to follow! Thank you

Lesson Transcript

Functions can be represented in four different ways. In this lesson, we will learn what a function table is, and how and when to use a function table to represent a function. We will also explore the rules that define a given function table.

Functions

A **function** is a rule that assigns a set of inputs to a set of outputs in such a way that each input has a unique output. That is, no input corresponds to more than one output. Because of this, the term 'is a function of' can be thought of as 'is determined by.' For example, if you were to go to the store with $12.00 to buy some candy bars that were $2.00 each, your total cost would be determined by how many candy bars you bought. Therefore, your total cost is a function of the number of candy bars you buy.

Functions can be represented in four different ways:

- Verbally
- Mathematically by an equation
- Graphically
- By a function table

We are going to concentrate on representing functions in tabular form—that is, in a function table.

Function Tables

A **function table** displays the inputs and corresponding outputs of a function. Function tables can be vertical (up and down) or horizontal (side to side). In this lesson, we are using horizontal tables. So in our examples, our function tables will have two rows, one that displays the inputs and one that displays the corresponding outputs of a function.

Consider our candy bar example. Let's represent this function in a table. We recognize that we only have $12.00, so at most, we can buy 6 candy bars. We put all this information into a table:

Function Table: Buying Candy Bars

Input = Number of Candy Bars
Output = Total Cost

Input	0	1	2	3	4	5	6
Output	$0	$2	$4	$6	$8	$10	$12

By looking at the table, I can see what my total cost would be based on how many candy bars I buy. For example, if I were to buy 5 candy bars, my total cost would be $10.00.

Another example of a function is displayed in this menu.

Notice that the cost of a drink is determined by its size. Therefore, the cost of a drink is a function of its size. We can represent this using a table. Our inputs are the drink sizes, and our outputs are the cost of the drink.

Function Table: Drink Menu

Input = Drink Size
Output = Cost of Drink

Input	Small	Medium	Biggie
Output	$1.19	$1.39	$1.59

We can look at our function table to see what the cost of a drink is based on what size it is.

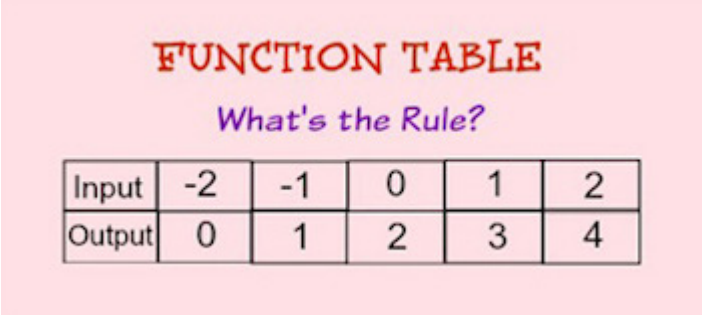
Function Table Rules

Each function is a rule, so each function table has a rule that describes the relationship between the inputs and the outputs. Sometimes a rule is best described in words, and other times, it is best described using an equation. We can observe this by looking at our two earlier examples.

Consider our candy bar example. Notice that for each candy bar that I buy, the total cost goes up by $2.00. That is, if I let *c* represent my total cost, and I let *x* represent the number of candy bars that I buy, then $c = 2x$, where x is greater than or equal to 0 and less than or equal to 6 (because we only have $12). This is the equation form of the rule that relates the inputs of this table to the outputs.

Now consider our drink example. In this case, our rule is best described verbally since our inputs are drink sizes, not numbers. Thus, our rule for this function table would be that a small corresponds to $1.19, a medium corresponds to $1.39, and a biggie corresponds to $1.59.

In the same way, we can use a rule to create a function table; we can also examine a function table to find the rule that goes along with it. Consider the following function table:



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