Function Notation

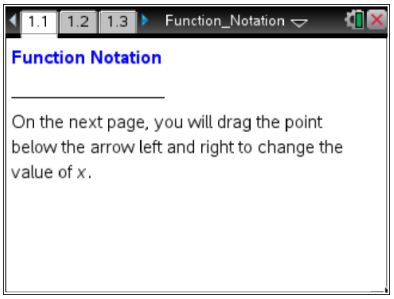
Student Activity

Name _____

Class _____

Open the TI-Nspire™ document *Function_Notation.tns.*

In this activity, you will explore *function machines*. By varying the input, you will see the output of functions such as $f(x) = 2x - 6$. You will also investigate principles involving how functions are expressed and what the notation represents.



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1. What do x and $f(x)$ represent in the function machine?

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2. Move the point to change the value of x. Use the function machine to complete the table.

Input (x)	Output f(x)
0	
2	
4	
	8
–3	
	–14
	0

3. a. Given the input variable x, explain the steps the function machine takes to find the output for the rule $f(x) = 2x - 6$.

   b. Use one of the input values from question 2 to show how substitution gives you the same output.

   c. Describe why the function machine could be called a *substitution* machine.

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4. A mystery function is shown.

   a. Find $h(9)$.

   b. Find $h(3)$.

   c. Find a rule for $h(x)$.

   d. Use your rule to find $h(7)$.

   e. Check your result for $h(7)$ using the function machine.

   f. What is $h(a)$?

5. David says that $f(2)$ means the same thing as $f(x) = 2$. Do you agree? Why or why not?

6. Given $f(x) = x + 3$, $g(x) = -2x + 7$, and $h(x) = 4x - 5$, find the following:

   a. $f(4)$

   b. $g(4)$

   c. $h(4)$

   d. $f(t)$

   e. $g(1) + h(1)$

   f. x when $f(x) = 12$