## Unit 4 Lesson 5: Using Function Notation to Describe Rules (Part 2)

### 1 Make It True (Warm up)

#### Student Task Statement

Consider the equation $q=4+0.8p$.

1. What value of $q$ would make the equation true when:
	1. $p$ is 7?
	2. $p$ is 100?
2. What value of $p$ would make the equation true when:
	1. $q$ is 12?
	2. $q$ is 60?

Be prepared to explain or show your reasoning.

### 2 Data Plans

#### Student Task Statement

A college student is choosing between two data plans for her new cell phone. Both plans include an allowance of 2 gigabytes of data per month. The monthly cost of each option can be seen as a function and represented with an equation:

* Option A: $A\left(x\right)=60$
* Option B: $B\left(x\right)=10x+25$

In each function, the input, $x$, represents the gigabytes of data used *over* the monthly allowance.

1. The student decides to find the values of $A\left(1\right)$ and $B\left(1\right)$ and compare them. What are those values?
2. After looking at some of her past phone bills, she decided to compare $A\left(7.5\right)$ and $B\left(7.5\right)$. What are those values?
3. Describe each data plan in words.
4. Graph each function on the same coordinate plane. Then, explain which plan you think she should choose.
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1. The student only budgeted $50 a month for her cell phone. She thought, “I wonder how many gigabytes of data I would have for $50 if I go with Option B?” and wrote $B\left(x\right)=50$. What is the answer to her question? Explain or show how you know.

### 3 Function Notation and Graphing Technology (Optional)

#### Student Task Statement

The function $B$ is defined by the equation $B\left(x\right)=10x+25$. Use graphing technology to:

1. Find the value of each expression:
* $B\left(6\right)$
* $B\left(2.75\right)$
* $B\left(1.482\right)$
1. Solve each equation:
* $B\left(x\right)=93$
* $B\left(x\right)=42.1$
* $B\left(x\right)=116.25$

#### Activity Synthesis



#### Images for Activity Synthesis





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