Relating Tables and Graphs to Equations

CCSS: 6.EE.C.9: Use variables to represent two quantities in a real-world problem ... write an equation to express one quantity ... in terms of the other quantity ... Analyze the relationship between the variables using graphs and tables, and relate these to the equation.

Launch

MP3, MP8

Label each column in the table to reflect the pattern in the shapes.
Then describe at least three patterns you see, within or across columns, using those label names.
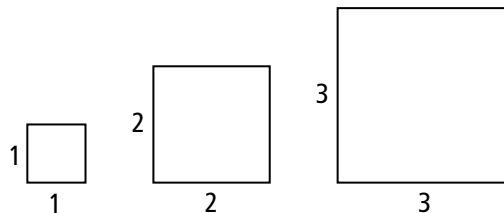
1	1	4
2	4	8
3	9	12

Pattern 1	Pattern 2	Pattern 3

Reflect Where have you seen the patterns in this problem before? Explain.
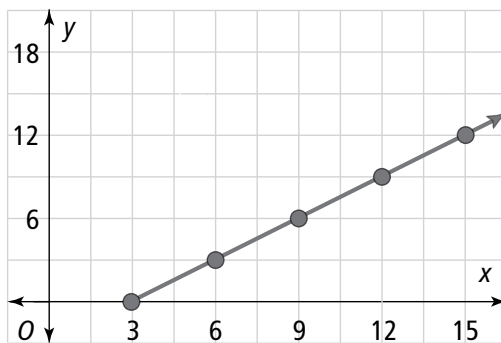
Got It?

PART 1 Got It

Use the table to relate the independent variable *x* to the dependent variable *y*. Write an equation that shows the relationship.

| x	y
0	0
2	8
4	16
6	24
8	32
10	40

PART 2 Got It (1 of 2)

Use the graph to write an equation that represents the relationship between *x* and *y*.

Got It?

To the right is a graph showing five different lines. Four of the lines are labeled with the equation that represents the relationship between x and y. What is the missing equation? Start by looking for a pattern among the lines that are already labeled.

$y = x - 1$
$y = x - 2$
$y = x - 4$
$y = x - 5$
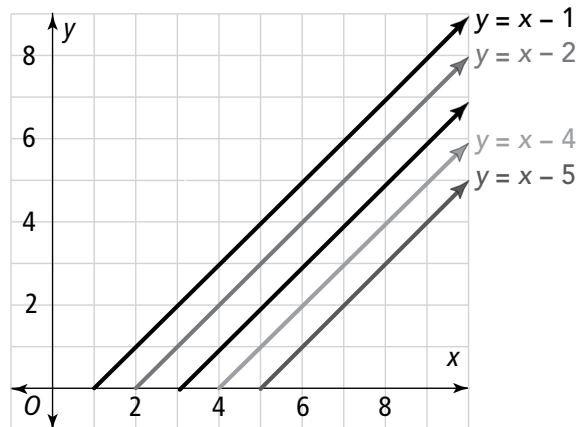
For a Saturday night show, a local band is paid $200 plus $5 for each ticket sold.
Write an equation that shows the relationship between the number of tickets sold and the total pay that the band receives.

Discuss with a classmate

Compare the equations that you wrote for this problem.
How did you choose the variable(s) to assign?
How did you determine how many variables you would need in order to write the equation?
Explain how you determined the expression for each side of the equation you wrote.
Relate the expression to the words in the problem statement.

PART 3 Got It (2 of 2)

In the Example, you wrote an equation relating the number of games bowled and total cost: $T = 3g + 5$.

Can you use the Commutative Property of Addition to write an equivalent equation?

Close and Check

Focus Question

How are graphs, tables, and equations related?
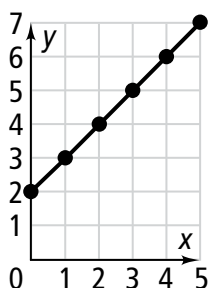
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Do you know HOW?

1. Use the table to relate the independent variable x to the dependent variable y. Write an equation that shows the relationship.

x	y
3	12
5	14
7	16
9	18

[_____]

2. Use the graph to write an equation that represents the relationship between x and y.

[_____]

Do you UNDERSTAND?

3. Reasoning Is it easier to write an equation based on a graph or a table? Explain.

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4. Error Analysis A classmate says the graph in Exercise 2 could represent the number of tokens won at an arcade. Explain the error in her suggestion.

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