

# How does this relate to school math?

The math in the workshop, looking for patterns and relationships between variables, lays groundwork for approaching the following math problem.

Find the function (rule) that created the table below.

$x, y$ , variables such as "interest rate" and "total cost"

$x$	$y$
1	-2
2	1
3	4
4	7
5	10
6	13

$x$  increases

$y$  increases

Goal: find an expression that relates  $x$  and  $y$ .

As  $x$  goes up by 1,  $y$  goes up by 3.

As  $x$  goes up by 1...

		+1	+1	+1	+1	+1
		↪	↪	↪	↪	↪
$x$	1	2	3	4	5	6
$y$	-2	1	4	7	10	13
		↪	↪	↪	↪	↪
		+3	+3	+3	+3	+3

... $y$  goes up by 3.

- $x$  difference is 1
- $y$  difference is 3
- 1 is **3 times** 3
- maybe  $y$  is **3 times**  $x$
- try  $3x$

put in a "3x" row

$x$	1	2	3	4	5	6
$3x$	3	6	9	12	15	18
$y$	-2	1	4	7	10	13

$y$  is 5 less than  $3x$

- just  $y = 3x$  does not work
- $y$  is always 5 less than  $3x$
- try the rule  $y = 3x - 5$

put in a "3x - 5" row

$x$	1	2	3	4	5	6
$3x - 5$	-2	1	4	7	10	13
$y$	-2	1	4	7	10	13

$y$  is equal to  $3x - 5$

Therefore the function,  $y = 3x - 5$ , created the original table.

# Working with real-life situations such as financing a new car can deepen students' understanding of algebraic concepts.

In the workshop

Consider variables for different loans.

Understand that the monthly payment *depends on* the interest rate.

Look for patterns in loan options.

In math class

Consider table of  $x, y$  values.

Understand that  $y$  depends on  $x$ , so  $y$  is the *dependent variable* and  $x$  is the *independent variable*.

Look for patterns in  $x, y$  table.