*I can identify a **constant of proportionality from a table.***

Independent and Dependent Variables

Dependent variables depend on the independent variables.

Example: Money spent (y) depends on items bought (x).

Dependent (y)
Independent (x)

Constant of Proportionality

The value multiplied with x to make it equal to y.

(Independent) (Dependent)

Unit Rates in Tables

1. Reynaldo is planning to drive from New York to San Francisco in his car. Reynaldo started to fill out the table below showing how far in miles he can travel for each gallon of gas he uses.

Gallons	2	4	6	8	10
Miles	56	112	168	224	280

What is the unit rate? $\frac{28 mi}{1 gal}$

This unit rate is also known as constant of proportionality.

2. Jarod is taking a cross-country trip with his family. The chart below shows the number of hours he traveled and the number of miles traveled. What was his average speed (miles per hour) for this trip?

Hours (x)	1	10	30
Miles (y)	40	400	1200

$\frac{40 mi}{1 hr}$

3. Arriana is making batches of cookies for her classmates. The table below shows the number of flour and sugar she needs as she makes more batches. Find the unit rate for the amount of flour she needs per cup of sugar.

Sugar	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$
Flour	$\frac{1}{4}$	$\frac{1}{2}$	1

$\frac{1/4}{1/8}$ = 2 cups of flour per cup of sugar

4. This table shows a proportional relationship between x and y. What is the constant of proportionality *between x and y*?

x	y
2	1.25
4	2.5
6	3.75
10	6.25

$\frac{y}{x} = \frac{1.25}{2} = 0.625$

$0.625(25) =$

What is the value of y when x is 25? 15.625

The **constant of proportionality** is represented by the variable k.

So... k = $\frac{y}{x}$ ... and... $y = kx$

Example:

x	y
4	24
5	30
6	36

What is k? $\frac{24}{4} = 6$

What is the equation? $y = 6x$

Remember:

For Horizontal

X			
Y			

For Vertical

X	Y

You Try 1:

Constant of proportionality (k): 4

Equation: $y = 4x$

g	h
2	8
3	12
4	16

You Try 2:

Constant of proportionality (k): 5

Equation: $y = 5x$

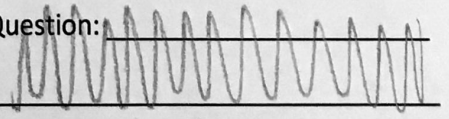
a	1	2	3
b	5	10	15

Exit:

The numbers of parts produced by three different machines are shown in the table.

Numbers of Machine Parts

Minutes	Machine Q	Machine R	Machine S
1	9	8	6
3	18	24	18
9	27	72	52

Question: 

Machine R

Answer: $y = 8x$