# R8 – THE CONSTANT OF PROPORTIONALITY

Answer Key

Go to student.desmos.com, get the class password from your teacher, and do the Desmos activity called Constant of Proportionality.

1. In the following table, what appears to be the constant of proportionality?

| ***x*** | 0 | 3 | 6 | 10 | 2.5 | 150 |
|---|---|---|---|---|---|---|
| ***y*** | 0 | 12 | 24 | 40 | 10 | 600 |

2. Given the following ordered pairs, what appears to be the constant of proportionality?

   (0, 0) (2, 5) (10, 25) (1, 2.5) 2.5

3. In as much detail as you can, describe the graph of a line with a constant of proportionality of $\frac{1}{2}$. It is a straight line through the origin, and all the *y*-coordinates are $\frac{1}{2}$ the value of the corresponding *x*-coordinates (0, 0), (4, 2), and (6, 3).

4. Write the numbers that might come next in this table, determine if there is a constant of proportionality, and explain your reasoning.

| ***x*** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ***y*** | 1 | 4 | 9 | 16 | 25 | 36 | 49 |

There is no constant of proportionality, or no number *k* that exists that represents a multiplier to arrive at each *y*-value for each corresponding *x*-value. The equation $y = x^2$ represents the data in this table.

5. Go to lesson 3.2, Getting Started, and look at the information for Barter Jack's and Quigley's. Assume that at both stores you can buy any number of Healthy Crunch bars you like.

   1. Fill in tables to collect data on this product from these two stores.

   2. For each table, list the constant of proportionality (*k*), and describe whether this number is the same or different than the unit price (price per one bar).

| **Barter Jack's** | |
|---|---|
| **quantity** | **price** |
| 2 | 2.50 |
| 1 | 1.25 |
| 4 | 5.00 |
| 8 | 10.00 |
| 10 | 12.50 |
| *k* = 1.25 | |

| **Quigley's** | |
|---|---|
| **quantity** | **price** |
| 2 | 2.75 |
| 1 | 5.50 |
| 4 | 1.375 or 1.38 |
| 6 | 8.25 |
| 10 | 13.75 |
| *k* = 1.375 or 1.38 | |