## Lesson 19: Tables, Equations, and Graphs, Oh My!

* Let’s explore some equations from real-world situations.

### 19.1: Matching Equations and Tables

Match each equation with a table that represents the same relationship. Be prepared to explain your reasoning.

Table 1:

| independent variable | dependent variable |
| --- | --- |
| 20 | 8 |
| 58.85 | 23.54 |
| 804 | 321.6 |

Table 2:

| independent variable | dependent variable |
| --- | --- |
| 5 | 18 |
| 36 | 49 |
| 75 | 88 |

Table 3:

| independent variable | dependent variable |
| --- | --- |
| 2.5 | 22.4 |
| 20 | 179.2 |
| 75 | 672 |

Table 4:

| independent variable | dependent variable |
| --- | --- |
| 20 |  |
| 36 | 3 |
| 804 | 67 |

Table 5:

| independent variable | dependent variable |
| --- | --- |
| 58.85 | 11.35 |
| 175.5 | 128 |
| 804 | 756.5 |

Table 6:

| independent variable | dependent variable |
| --- | --- |
| 2.5 | 275.65 |
| 20 | 293.15 |
| 58.85 | 332 |

Table 7:

| independent variable | dependent variable |
| --- | --- |
| 5 | 3 |
| 20 | 18 |
| 36 | 34 |

Table 8:

| independent variable | dependent variable |
| --- | --- |
| 2.6 | 73.71 |
| 20 | 567 |
| 36 | 1,020.6 |

Table 9:

| independent variable | dependent variable |
| --- | --- |
| 2.6 | 15.6 |
| 36 | 216 |
| 58.85 | 353.1 |

### 19.2: Getting to Know an Equation

The equations in the previous activity represent situations.

* where is the number of sides on a polygon and is the number of triangles you can draw inside it (from one vertex to the others, without overlapping)
* where is a day in the Gregorian calendar and is the same day in the Julian calendar
* where is the amount of income and is the profit after $47.50 in expenses
* where is a temperature in degrees Celsius and is the same temperature in Kelvin
* where is the total edge length of a regular tetrahedron and is the length of one side
* where is the volume of a piece of copper and is its mass
* where is the number of eggs and is how many dozens that makes
* where is the amount of time it takes in seconds to jog a distance of meters at a constant speed of 2.5 meters per second
* where is the mass in grams and is the same amount in ounces

Your teacher will assign you one of these equations to examine more closely.

1. Rewrite your equation using words. Use words like product, sum, difference, quotient, and term.
2. In the previous activity, you matched equations and tables. Copy the values from the table that matched your assigned equation into the first 3 rows of this table. Make sure to label what each column represents.

| * independent variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | * dependent variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| --- | --- |
|  |  |
|  |  |
|  |  |
| * 60 |  |
|  | * 300 |

1. Select one of the first 3 rows of the table and explain what those values mean in this situation.
2. Use your equation to find the values that complete the last 2 rows of the table. Explain your reasoning.
3. On graph paper, create a graph that represents this relationship. Make sure to label your axes.

### 19.3: Sharing Your Equation with Others

Create a visual display of your assigned relationships that includes:

* your equation along with an explanation of each variable
* a verbal description of the relationship
* your table
* your graph

If you have time, research more about your relationship and add more details or illustrations to help explain the situation.



© CC BY Open Up Resources. Adaptations CC BY IM.