**Functions Everywhere - Identifying Independent and Dependent Variables**

The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** variable corresponds to the **input** values.

The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** variable corresponds to the **output** values.

We say that the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_variable is a function of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_variable.

This means that the dependent variable’s value is dependent on the independent variable’s value.

**Example**: The pressure exerted by water on a diver increases as the diver’s depth increases.

The independent variable is *diver’s depth*.

The dependent variable is *pressure.*

*Pressure* is a function of *diver’s depth*.

**Now consider the following scenarios and complete each sentence.**

1. The circumference of a circle increases when the radius of a circle is increased.   
   The independent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The dependent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a function of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. The height of liquid in a 50-gallon tank continues to decrease when it leaks all day.

The independent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The dependent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a function of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. World record times for each year that a record is set for running the 100-meter dash.

The independent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The dependent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a function of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. The median age of the U.S. population has been increasing since 1850.

The independent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The dependent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a function of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. The amount of points scored by a player depends upon the number of baskets she makes.

The independent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The dependent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a function of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. The amount of money spent on DVDs depends on the number of DVDs you buy.

The independent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The dependent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a function of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Often relationships are described verbally. Consider each of the following scenarios and provide a response and explanation in the space provided.

1. The independent variable is the time you ride in a car at 55 mph (using cruise control) and the dependent variable is the distance traveled. Is this relationship a function? Explain your response.
2. The independent variable is the cost of a taxable item and the dependent variable is the sales tax owed on the item. Is this relationship a function? Explain your response.
3. The independent variable is the gender of your teacher and the dependent variable is the subject they teach. Is this relationship a function? Explain your response.
4. The independent variable is the length of the side of a cube and the dependent variable is the volume of the cube. Is this relationship a function? Explain your response.
5. The independent variable is a student’s age and the dependent variable is the number of siblings the student has. Is this relationship a function? Explain your response.
6. . on? Explain your response. cribe whether a real world relationship is a function or not.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_12. 12The independent variable is time and the dependent variable is the world population. Is this relationship a function? Explain your response.

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| 1. The independent variable is the day of the year and the dependent variable is the time of low tide on that day of the year. Is this relationship a function? Explain your response. | |  |  |  |  |  | | --- | --- | --- | --- | --- | | **High & Low Tides at Old Saybrook, CT**  November 2012 | | | | | | Day | Low | High | Low | High | | **Tues 13** | 2:50 AM | 9:12 AM | 3:38 PM | 9:38 PM | | **Wed 14** | 3:40 AM | 10:02 AM | 4:28 PM | 10:29 PM | | **Thurs 15** | 4:31 AM | 10:55 AM | 5:20 PM | 11:24  PM | |