**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per.\_\_\_\_\_\_\_ Score:\_\_\_\_\_**

**U8 HW #3** *More About Functions*

1. Shari is filling up her gas tank. She wants to know how much it will cost to put gas in her car. The sign below shows the cost for gas at Grizzly’s Gas-n-Go.

Price of Gas

$3.25/gallon



* 1. Identify the **independent variable** in this situation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. Identify the **dependent variable** in this situation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  3. Complete the graph and table below for this relationship. Make sure you label the columns and axes in your table and graph.

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

* 1. Write an equation that represents this situation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. In this situation \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a function of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Directions:** Each of the following situations represents a functional relationship between two quantities. Underline the two quantities. Put an I above the independent variable and a D above the dependent variable.

1. As the size of your family increases so does the cost of groceries.
2. The value of your car decreases with age.
3. The greater the distance a sprinter has to run the more time it takes to finish the race.
4. A car has more gas in its tank can drive a farther distance.
5. A child’s wading pool is being inflated. The pool’s size increases at a rate of 2 cubic feet per minute.
6. The following tables show the distance traveled by three different cars over five seconds.

|  |  |
| --- | --- |
| **Car 1** | |
| Time  (s) | Distance (ft.) |
| 1 | 4 |
| 2 | 7 |
| 3 | 10 |
| 4 | 13 |
| 5 | 16 |

|  |  |
| --- | --- |
| **Car 2** | |
| Time  (s) | Distance (ft.) |
| 1 | 2 |
| 2 | 5 |
| 3 | 10 |
| 4 | 17 |
| 5 | 26 |

|  |  |
| --- | --- |
| **Car 3** | |
| Time  (s) | Distance (ft.) |
| 1 | 3 |
| 2 | 5 |
| 3 | 9 |
| 4 | 17 |
| 5 | 33 |



* 1. Consider the relationship between time and distance traveled for each car. Which of the tables of data can be modeled by a linear function? Which ones cannot be modeled by a linear function? Justify your answer.
  2. For any of the data sets that can be modeled by a linear function, write a function that models the distance traveled *D* as a function of time *t*.
  3. What is the dependent variable in this situation? The independent variable?
  4. Which car is traveling fastest? Justify your answer.

**Find each function value. Solve for y when given x. Show all work.**

**9.**

**−5**

**11.**

**−41**

**Choose four values for x and make a function table for each function.**

***y***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **12.** | ***y*** | **13.** | ***y*** | **14.** |  |