**Understanding Linear Relations Assignment: Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***Learning Target 1:*** I can relate a graph to a description or draw a graph given information

1. **Match graph with the appropriate description. Response: \_\_\_\_\_\_\_\_ /1**

|  |  |
| --- | --- |
| **Speed (m/s)**  **Time (s)** | 1. A roller coaster goes up the ramp, stops briefly and then heads down. 2. A car slowing down and stopping at a red light. 3. A football player is running down the field slows down to catch the ball and then sprints to the touch down zone. 4. A train stopped at a station waiting for passengers. |

1. **Match the graph with the appropriate description. Response: \_\_\_\_\_\_\_\_ /1**

|  |  |
| --- | --- |
| **Speed (m/s)**  **Time (s)** | 1. A roller coaster goes up the ramp, stops briefly and then heads down. 2. A car slowing down and stopping at a red light. 3. A football player is running down the field slows down to catch the ball and then sprints to the touch down zone. 4. A train stopped at a station waiting for passengers. |

1. **Complete the table of values and then the graph to match the description. /3**

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| --- | --- | --- | --- |
| **A dog runs away from its owner at a steady speed of 4 m/s for  20 seconds. The dog then sits for 15 seconds. Then the dog walks back to the owner at a constant speed of 2 m/s.** | **Table of Values** | |  |
| **t (sec)** | **d (m)** |
| 0 | 0 |

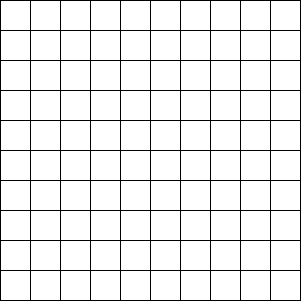
***Learning Target 2:*** I can determine whether a relation is linear or non-linear, and discrete or continuous.  
  
**Learning Target 3**: I can write relations using the five different methods (words, ordered pairs, table of values, graph and equation).

1. Determine which set of numbers is linear: A: {(0,0), (1 ,1), (4,2), (9,3), (16,4)}

**Show work! Explain!**  B: {(5,10), (10, 20), (15,30), (20, 40), (25, 50)} **/1**

2. The cost to make colour prints at staples is $3 per a copy plus a $2 service charge.

**Define the independent and dependent variable in this relation. /1**

****Let \_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_, the independent variable  
Let \_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_, the dependent variable

Create an equation showing the relationship between cost and the number of prints using the defined variables.  **/1**

Create a table of values and use these to complete the graph above. Include all labels on graph. **/3**

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Is this relation continuous or discrete? Explain. **/1**

Would a graph of a showing the changing volume with time of the water in a hot tub as it is emptied be continuous or discrete? Explain. **/1**

**Learning target 4:** I can determine whether a relation is a function and use and understand function notation.

3. Indicate whether or not each group of ordered pairs represents a function, yes or no. Explain how you know. a) {(5, 2), (–3, 1), (5, –4), (0, 11)} b) {(–6, –8), (5, 1), (9, –4), (7, 1), (15, 0) **/2**

**c.) Use the graphs to respond to the questions. Show work on graphs to find information! /8**

|  |  |  |
| --- | --- | --- |
| **Graph 1** |  | **For the graph 1 of f(x):**   1. Find f(2) 2. Find x such that f(x) = 9   3) Find f(0) the y-intercept.  Give ordered pair ( , ) |
| **Graph 2** | **For the graph 2 of f(x):**   1. Find f(1) 2. Find x such that f(x) = 2 |
| **Graph 3** | **For the graph 3 of f(x):**   1. Find f(3) 2. Find x such that f(x) = 3 3. Find x, if f(x) =0. This is the x -intercept.   Give ordered pair ( , ) |

**Understanding Function Notation**

1. If , then find **/3**
2.  b.  c. x such that
3. If , then find **/3**

a.  b.  c. 