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

**U8 HW #2** *Representations of a Function*

1. Use the pattern below to answer the questions that follow.

**Pattern:**

1. Express this relation as a table, mapping, and graph.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table**

|  |  |
| --- | --- |
| Stagenumber | Number of Smiles |
|  |  |
|  |  |
|  |  |
|  |  |

 |

|  |  |
| --- | --- |
|  *Stage* |  *Smiles* |
|  |

**Mapping** |
| **Graph**  | **Set of Ordered Pairs** |

1. Is this relation a function? Explain how you know.

**Directions:** Determine if each relation or situation defines a function. Justify your answer.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1. **Input:** age

**Output:** shoe size

|  |  |
| --- | --- |
| *Age* |  *Shoe Size* |
| 13146789 |

Function? Explain.  | 1. **Input:** number of chairs

**Output:** number of legs

|  |  |
| --- | --- |
| *Chairs* |  *Legs* |
| 1234481216 |

Function? Explain.  |
|

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| 0.2 | 1.5 |
| 0.4 | 1.25 |
| 0.6 | 1.5 |
| 0.8 | 1.25 |

Function? Explain.  | 1.

Function? Explain.Linear or Non-linear?  |
| 1. A car is traveling at a constant rate of 60 mph. Is the car’s distance traveled a function of the number of hours the car has been driving?

Function? Explain. Linear or Non-linear?  | 1.

Function? Explain. Linear or Non-linear?  |
| 1. You know your cousin lives at the zip code 12345 so you type it in Google to find your cousin’s full address. Is the address a function of zip code?

Function? Explain.Hint: Is your cousin’s address the only one that will come up in Google when you enter the zip code? | 1. You know your cousin’s cellular phone number is (123) 456-7890 so you dial that number to call him. Is the person being called a function of phone number dialed?

Function? Explain. |
| Input Output3691256101247871012Function? Explain. Linear or Non-linear?  | 1. $y=\frac{1}{3}x+4$

Function? Explain. Linear or Non-linear?1. $\{(-1, 0), (1, 2), (1, 4), (5, 2)\}$

Function? Explain. Linear or Non-linear? |
| 1. .$ \{(2, -10), (5, -25), (8, -40), (-5, 25)\}$

Function? Explain.  | 1. $y=-5$

Function? Explain. |

**Directions:** Circle the letter next to the table if the data represents a linear function.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **A** |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| 0 | –5 |
| 1 | 0 |
| 2 | 5 |
| 3 | 10 |

 | **B** |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| 0 | 15 |
| 1 | 12.5 |
| 2 | 10 |
| 3 | 7.5 |

 | **C** |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| 0 | 4 |
| 1 | 8 |
| 2 | 16 |
| 3 | 32 |

 | **D** |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| 0 | 98 |
| 1 | 98 |
| 2 | 98 |
| 3 | 98 |

 |

**Directions:** Circle the letter next to the graph if it represents a linear function.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **A** |  | **B** |  | **C** |  |
| **D** |  | **E** |  | **F** |  |
| **G** |  | **H** |  | **I** |  |

Directions: Circle the letter next to each equation if it represents a linear function.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **A** | $$2x+4y=16$$ | **B** | $$y=\left|2x\right|+5$$ | **C** | $$y=x^{2}+5$$ | **D** | $$y=5∙3^{x}$$ |
| **E** | $$y=\frac{4}{x}+3$$ | **F** | $$y=\frac{x}{4}+3$$ | **G** | $$y=\sqrt{4x}$$ | **H** | $$x^{2}+y^{2}=25$$ |
| **I** | $$xy=24$$ | **J** | $$y=x(x+2)$$ | **K** | $$y=x^{3}$$ | **L** | $$y=8$$ |

1. What method or strategy did you use to determine which equation(s) are linear? What patterns did you look for?