Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Table #: \_\_\_\_\_\_\_ Period: \_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_

**6.4 NOTES – Comparing Linear and Nonlinear Functions**

*Objective: Determine whether tables, graphs and equations are linear or nonlinear.*

*HW: (6.4) p. 270 #1, 3 – 10, 12 - 16 (Solutions on p. A30)*

LESSON LAUNCH: Look at the rate of change for each table. Determine if the rate of change is *constant* or *not constant* and use that information to determine whether the function is *linear* or *non-linear*. Note whether or not the function can be written in slope-intercept form.

1. y = x + 2 2. y = 2x

 

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. y = x2 4. $y= \frac{2}{x}$



\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Read the Examples 1 – 4 on p. 268-269. Do ON YOUR OWN Problems #1- 6

**DOES THE TABLE OR GRAPH REPRESENT A *LINEAR* OR *NONLINEAR* FUNCTION? EXPLAIN**

|  |  |  |  |
| --- | --- | --- | --- |
| **Example 1:** | **Example 2:** | **Example 3:** | **Example 4:** |

|  |  |  |
| --- | --- | --- |
|  |  |  |

|  |
| --- |
| **EXAMPLE 3 (p.269): Which equation(s) represents a *nonlinear* function?**   |

**DOES THE EQUATION REPRESENT A *LINEAR* OR *NONLINEAR* FUNCTION? EXPLAIN**

|  |  |  |
| --- | --- | --- |
|  |  |  |

|  |
| --- |
| 7. VOLUME. The table shows the volume V (in cubic feet) of a cube with an edge length of x feet. Does the table represent a linear or nonlinear function? EXPLAIN. |
| 8. **SIMILAR TEST QUESTION #13**: The table represents a LINEAR FUNCTION that shows the amount of money saved after *x* weeks. Complete the table.

|  |  |
| --- | --- |
| **Week, x** | **Savings ($), y** |
| 0 | 20 |
| 1 | ? |
| 2 | 58 |

  |

|  |  |
| --- | --- |
| 9. **SIMILAR TEST QUESTION #13**: The graph of a function is a line that passes through the points (1, 1), (3, 7) and (4, y). What is the value of y? | 10. **SIMILAR TEST QUESTION #13**: The graph of a function is a line that passes through the points (2, 0), (5, 18) and (10, y). What is the value of y? |

**Summary: IS IT LINEAR OR NONLINEAR?**

|  |  |  |
| --- | --- | --- |
| Type of Function | LINEAR | NONLINEAR |
| Graph |  |  |
| Equation |  |  |
| Table |  |  |