Homework 4.4: Rates of Change Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Math 3

**Directions:** Order the following numbers from least to greatest.

1. 1003 log2100 100 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. 2-1 log2(1/8) 0 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. 20 log28 2 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Directions:** Which is greater? For each problem, make a true statement by placing the appropriate inequality symbol between the two expressions. (Hint: Think about what you know about the expression and the end behavior as well as rates of change of the function instead of plugging in values).

|  |  |
| --- | --- |
| **If x < -100, then:** | **If x > 100, then:** |
| 1. x2 \_\_\_\_\_\_\_ 2x | 1. x2 \_\_\_\_\_\_\_ 2x |
| 1. x5 \_\_\_\_\_\_\_ x2 | 1. x5 \_\_\_\_\_\_\_ x2 |
| 1. x2 \_\_\_\_\_\_\_ x3 | 1. x2 \_\_\_\_\_\_\_ x3 |

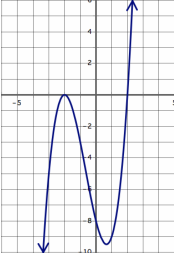
**Directions:** Determine the function type and state the end behavior.

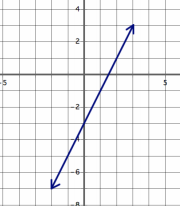
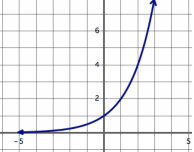
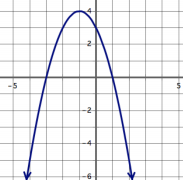
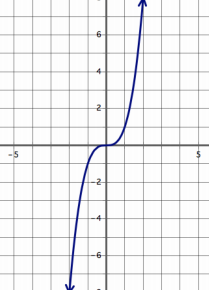
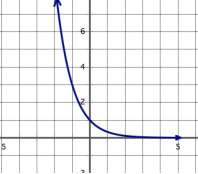
1. 
2. 
3. 
4. 

**Directions:** Use questions #10-13 to answer the following.

1. Which function above has the greatest value at x = 1000? 14. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Which function above is always increasing? 15. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Which function above is always decreasing? 16. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Which function above has a relative maximum value? 17. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Directions:** Determine the end behavior.



1. 
3. 
4. 
5. 
6. 

**Review:** Solve for x.

1. 
2. 
3. 
4. 
5. 
6. 