**Semester 1 Final Exam Multiple Choice Review**

1. Assume and are inverses of one another and drawn on the same graph with the same scale on both the horizontal and vertical axis. What is true of the graph?

2. If , then x= \_\_\_\_\_\_\_\_

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

3. Complete the definition of Logarithm: *For all positive numbers a, where a ≠ 1, and all positive numbers x, means the same as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.*

4. Find the inverse of ?

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

5. Name three different ways to write ?

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

6. a. Draw a graph of



b. Draw a graph of



Simplify (on 10 and 11 use definition of log)

|  |  |  |  |
| --- | --- | --- | --- |
| 7. |  |  |  |
| 8. |  |  |  |
| 9. |  |  |  |
| 10. |  |  |  |
| 11. |  |  |  |

12. If , is it possible for *c* to equal a negative number? Explain.

13. Simplify ?

14. Expand

15. Write equivalent statements to the following argument. .

16. We know that and are *inverses* of one another. What can you conclude about this inverse relationship?

17. If , then

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

18. Find a point on the graph of ?

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

**Simplify**

|  |  |  |  |
| --- | --- | --- | --- |
| 19. |  |  |  |
| 20. |  |  |  |
| 21. |  |  |  |
| 22. |  |  |  |
| 23. |  |  |  |

*Make a table for each of the following*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 24. | Linear | a. | |  |  | | --- | --- | | x | y | | 1  2  3  4  5 | 2  6  18  54  162 | |
| 25. | Exponential | b. | |  |  | | --- | --- | | x | y | | 1  2  3  4  5 | -1  4  11  20  31 | |
| 26. | Quadratic | c. | |  |  | | --- | --- | | x | y | | 1  2  3  4  5 | 3  5  7  9  11 | |
| 27. | Cubic | d. | |  |  | | --- | --- | | x | y | | 3  6  9  12  18 | 1  2  3  4  5 | |
| 28. | Logarithmic | e. | |  |  | | --- | --- | | x | y | | 1  2  3  4  5 | 1  7  21  49  97 | |

29. Label the above functions as whether they or NOT also be considered a polynomial function.

30. If , then what is ?

31. Factor ,

32. Write the function in standard form that has roots 2 and -3

33. Determine which of the following are even

a.

b.

c.

d.

e.

34. Decide whether x=-3 is a solution to the following function

*Match each rational function on the left with its graph on the right. Asymptotes are shown as dotted lines in the graphs.*

|  |  |
| --- | --- |
| *35.* |  |
| *36.* |  |
| *37.* |  |
| *38.* |  |
| *39.* |  |

40. One of the graphs from **above** is an odd function. Which one?

41. Solve and identify any extraneous solutions.

42. Which of the following are proper rational functions

a.

b.

c.

d.

e.

h.