**Module 3 Test Review**

(Polynomial Functions 3.1 – 3.8)

*Make a table for each of the following*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| \_\_\_\_\_\_ 1. | Linear | |  |  | | --- | --- | | x | y | |  |  | |
| \_\_\_\_\_\_ 2. | Exponential | |  |  | | --- | --- | | x | y | |  |  | |
| \_\_\_\_\_\_ 3. | Quadratic | |  |  | | --- | --- | | x | y | |  |  | |
| \_\_\_\_\_\_ 4. | Cubic | |  |  | | --- | --- | | x | y | |  |  | |
| \_\_\_\_\_\_ 5. | Logarithmic | |  |  | | --- | --- | | x | y | |  |  | |

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

7. If , then what is ?

8. Factor ,

9. How many **real** roots does the function have?

10. How many roots (both **real** AND **complex**) does the function have?

11. Write the function in factored form that has roots -2 and 3

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

*Use the equations below to answer questions 13 – 19.*

13. Find 14. Find

15. Find 16. Find

17. Find ALL of the roots of 18. Find ALL of the roots of

19. Factor into two polynomials

20. Write a polynomial in **factored** **form** that has a leading coefficient of -2, and the following roots: 2, -3, 4

21. Write a polynomial in **standard** **form** that has a leading coefficient of 2, and the following roots: 2, -3, 4

22. Write a polynomial in factored form that has a leading coefficient of 2, and the following roots: -3 , 3 , 2. Make a table of values for this function.

|  |  |
| --- | --- |
| x | y |
|  |  |

23. Graph the polynomial from #22.

24. a. What are the x-intercepts from #22 above? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. What is the y-intercept from #22 above? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25. Use the polynomial from #22 above.

a.

b.