MIDTERM REVIEW SPRING 2016 ALGEBRA 2

Simplify completely

1. 8(x – 4) – 7(x – 2)

1. Write an equivalent expression in standard form: (x2 + 7x – 3) – (-9x2 – 11x + 5)

1. A. Find the coefficient of the 4th term in the expansion (x + 2y)3

B. Find the coefficient of the  term in the expansion 

1. Write the polynomial in standard form. Then name the polynomial based on its degree and number of terms: 6x – 10x2 – 3 + 2x2
2. The cost of producing *n* toys at a factory is given by the polynomial 0.5n2 + 3n + 12. The cost of packaging is 0.25n2 + 3n + 12. Write and simplify an expression for the total cost of producing and packaging *n* toys.
3. Factor by grouping: 9x5 – 6x4 – 27x3 + 18x2
4. Use Pascal’s Triangle to expand the expression: (3x + 5)4

 8. Find the product of 7+3i and its conjugate.

 9. After applying the distributive property, which of these results in a *perfect square trinomial?*

1. (x +5 )(x - 5) B. x(x – 7) C. (x – 8)2 D. (x + 6)(x + 8)

 10. Which method of solving can be used for every quadratic equation?

 11.. Use the Zero Product Property to find all the solutions to the equation

 8x(x + 12)(2x – 7) = 0

 12. Simplify completely: 

Use the following graph to answer questions 13-15



13. What is a possible equation, in factored form, for the function shown?

14. The function has a multiplicity of 2 at \_\_\_\_\_\_\_\_\_\_\_\_

15. The least possible degree of the function is \_\_\_\_\_\_\_\_\_\_\_\_

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

 16. Given the factored form of the polynomial function, what are the zeros?

 17. Given the factored form of the polynomial function, there is a multiplicity of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 18. What are the solutions of the equation:  ?

 19. A. What are the zeros of the function: 

 B. What are the zeros of the function: 

 Use the graph for problems 20-25



 20. How many extrema does this function have?

 21. What is the least possible degree of the function?

 22. Which of the following statements is FALSE for the function shown?

 a. The domain is $ \left(-\infty , \infty \right)$.

b. The function has zeros at -1, 1.7, 3, 5.

 c. The function is even and has symmetry about the y axis.

d. The function has no maximum.

 23. Describe the leading coefficient of the function.

 24. What is the range of the function?

 25. What is the end behavior of the function?

 A.  C. 

 B.  D. 

 Use this graph for problems 26-31



 26. How many extrema does this function have?

 27. What is the least possible degree of the function?

 28. Which of the following statements is FALSE for the function shown?

 a. The domain is $ \left(-\infty , \infty \right)$.

b. The function has zeros at -1, 1.7, 3, 5.

 c. The function is odd and has rotational symmetry.

d. The function has no minimum.

 29. Describe the leading coefficient of the function.

 30. What is the range of the function?

 31. What is the end behavior of the function?

 A.  C. 

 B.  D. 

 32. For the polynomial , find the average rate of change on the interval 

 33. A. What is the solution set in interval notation for: 

 B. What is the solution set in interval notation for: 

 34. Which one of these functions is odd?

 a.  b.  c.  d. 