**Name:** _____ **Class:** _____ **Date:** _____ **ID: A**

## Algebra 2 - Study Guide 1 - Baker

1. Use first, second, and third differences to decide what kind of function fits the data.

| x | -2 | -1 | 0 | 1 | 2 | 3 |
|---|---|---|---|---|---|---|
| y | 6 | 2 | 0 | 0 | 2 | 6 |

2. Use first, second, and third differences to decide what kind of function fits the data.

| x | 3 | 5 | 7 | 9 | 11 | 13 |
|---|---|---|---|---|---|---|
| y | 18 | 13 | 8 | 3 | -2 | -7 |

3. Which of these expressions are equivalent to $(3x+9)(2x-4)$? Select all that apply
   a. $(2x+6)(3x-6)$
   b. $6(x+3)(x-2)$
   c. $6x^2+6x-36$
   d. $3(x+9)(2x-4)$
   e. $6(x-2)(x+3)$

4. Which of these expressions are equivalent to $36x^2-9$? Select all that apply
   a. $3(4x^2-3)$
   b. $9(2x+1)(2x-1)$
   c. $(6x+3)(6x-3)$
   d. $3(2x-1)(6x+3)$
   e. $9(2x-1)^2$

5. Determine whether each pair of expressions are equivalent. Explain your reasoning.

   A) $n(2n-1)$ and $2n^2-1$

   B) $p^2-(3p+p^2)$ and $-3p$

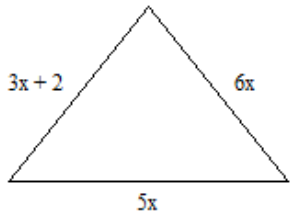
**Simplify the sum or difference.**

6. $(7u^3+7u^2+8)+(2u^3-5u+7)$

7. $(-7x-5x^4+5)-(-7x^4-5-9x)$

8. $(4u^3+4u^2+2)+(6u^3-2u+8)$

9. Write the perimeter of the figure.




not to scale

**Simplify the product.**

10. $7a^3(5a^6-2b^3)$

11. $(4x+3)(2x+5)$

12. $(3x-7)(3x-5)$

13. $(2n^2+4n+4)(4n-5)$

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14. Find the GCF of the terms of the polynomial.

$8x^5 + 32x^3$

**Factor out the GCF.**

15. $40w^{11} + 16w^6$

**Factor the trinomial.**

16. $6x^2 + 5x + 1$

17. $6g^2 + 11g - 35$

18. $3x^2 + 7x - 6$

**Factor the difference of squares.**

19. $r^2 - 49$

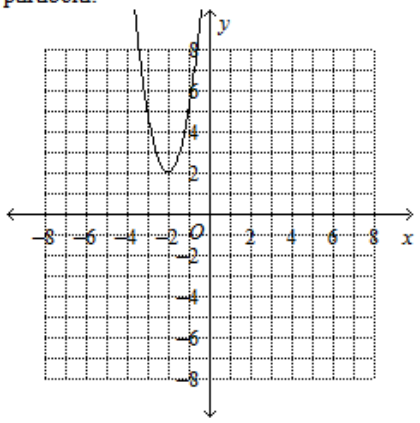
20. $4x^2 - 81y^2$

**Factor by grouping.**

21. $3x^3 + 3x^2 + x + 1$

22. $6g^3 + 8g^2 - 15g - 20$

23. Use vertex form to write the equation of the parabola.




24. Identify the vertex and the opening direction of the graph of the function $y = -3(x + 2)^2 + 5$.

25. What are the roots of the quadratic function with the equation $f(x) = 3(x - 6)(x + 2)$

26. Write the factored form of the equation for the graph below.