Name_____Period_____Date_____

Vocabulary: Define each word and give an example.

1. Degree of a Polynomial

2. GCF

Short Answer:

3. Show the sum and difference pattern for multiplying two binomials.

4. Describe how to determine if the polynomial $ax^2 + bx + c$ is factorable.

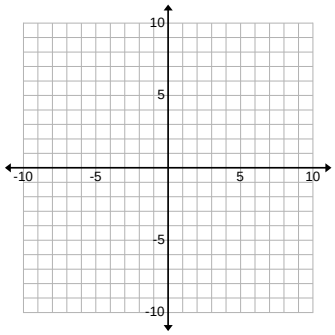
Review:

5. Solve the system: $\begin{aligned} 5x + y &= 9 \\ 10x - 7y &= -18 \end{aligned}$

6. Write the recursive and explicit formulas for the following sequence: 2, 6, 10, 14, 18, …

7. Solve the equation: $3^{2x-1} = 27$

8. Graph the line: $5x - 10 = 2y$



Problems:
Be sure to show all work used to obtain your answer. **Circle or box in the final answer.**

9. Classify the polynomials by their degree and number of terms. If it is not in standard form, write it in standard form.

   a. $1-4x^2+2x^4$ b. $4x-5$ c. $8x^3$

10. Find the sum or difference of the polynomials. Write your answer in standard form.

    a. $\left(-b^2+3b\right)+\left(4b^2-8b-5\right)$ b. $\left(4p^3+p^2-1\right)-\left(2-p-p^2\right)$

    c. $\left(13a^2-6a^5-2a+8\right)-\left(-10a^2-11a^5+9a+5\right)$ d. $\left(9r^3+5r^2+11r\right)+\left(-2r^3+9r-8r^2\right)$

11. Find the product. Write your answer in standard form.

    a. $-6x^3\left(x^2-3x+2\right)$ b. $\left(2x-3\right)\left(3x^2-x+5\right)$

    c. $\left(5x^2-4x\right)\left(3x^2+2\right)$ d. $\left(3x-5\right)\left(4x+7\right)$

    e. $\left(5y-2x\right)\left(5y+2x\right)$ f. $\left(5-3x\right)^2$

12. Write an expression for the *perimeter* of a rectangle with a length of $\left(3x+5\right)$ and a width of $\left(2x+1\right)$.

13. Find the GCF of the terms: $35a^4b^8,\ 49a^2b^5,\ 14ab^4$

14. Factor out the GCF in the polynomial. $4x^5+8x^3-6x^2$

15. Factor the trinomials.

a. $x^2-11x+30$

b. $6x^2+4x-10$

16. Factor the polynomials.

a. $169-9y^2$

b. $16x^2+24x+9$

17. Factor the expressions completely.

a. $16x^2-36$

b. $6x^2-x-2$

c. $-30b^4+58b^3-24b^2$

d. $3x^3-15x^2-6x+30$

Multiple Choice Section: **Circle the best answer.**

18. The function $g(x)$ is the amount of money Shawn has in the bank at the beginning of the month. The function $f(x)$ is the amount of money withdrawn from the account during the month. Which expression represents the amount of money left at the end of the month?

$f(x)=x^2-3x+12$ $g(x)=6x^2-2x+20$

A. $5x^2-5x+8$
B. $5x^2+x+8$
C. $-5x^2-x-8$
D. $-5x^2-5x+8$

19. Which expression below represents the product of $(5x+6)$ and $(2x-5)$?

A. $10x^2-37x-30$
B. $10x^2-13x-30$
C. $10x^2+13x-30$
D. $10x^2+37x-30$

20. Expand the expression: $(2x-7)^2$

A. $4x^2-49$
B. $4x^2+49$
C. $4x^2-28x+49$
D. $4x^2+28x+49$

21. If the area of the rectangle shown is given by the expression **$3x^2 + 7x - 6$,** and the width is **$(x + 3)$,** which of the following could represent the length?

A. $(3x+2)$
B. $(x+2)$
C. $(3x-3)$
D. $(3x-2)$

22. Write the polynomial in standard form. Then, name the polynomial based on its degree and number of terms.

$$2-11x^2-8x+6x^2$$

A. $-5x^2-8x+2$; quadratic trinomial
B. $5x^2-8x-2$; quadratic trinomial
C. $-6x^2-8x+2$; cubic polynomial
D. $6x^2-8x+2$; cubic trinomial