NOTES: INTRODUCTION TO POLYNOMIALS

QUESTIONS: | **NOTES:**

$3x^2 + 6x - 8$

Polynomial: an expression consisting of more than two terms

Standard Form: write with the highest degree first in descending order of exponents

NAMING POLYNOMIALS:

*Terms are separated by a (+) or (−)

1ST: Degree (highest power exponent)

0 - Constant

1 - Linear

2 - Quadratic

3 - Cubic

4 - Quartic

5 - Quintic

2nd: Polynomial (Number of Terms)

1 - Monomial

2 - Binomial

3 - Trinomial

4 or more - Polynomial

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* write in Standard Form

Find the degree and name of each polynomial.

1. $x + 3x^4 - 21x^2 + x^3$

$3x^{④} + x^3 - 21x^2 + x$

Degree = 4
Quartic Polynomial

2. $7x^2 + 17 - x^3 + 2x$

$-x^{③} + 7x^2 + 2x + 17$

Degree = 3
Cubic Polynomial

* The degree is the highest sum of the exponents

3. $3g^{②}h^{③} + g^{③}h^{①}$

5 4

Degree = 5

4. $10s^{②}t^{②} + 4s^{①}t^{②} - 5s^{③}t^{②}$

4 3 5

Degree = 5

Write the following in Standard Form

5. $7a + 4 - a^2$

$-a^2 + 7a + 4$

Degree = 2
Quadratic Trinomial

★ Combine Like Terms

6. $2x^3 - 9 + 2x + 8 - 4x$

$2x^3 - 2x - 1$

Degree = 3
Cubic Trinomial

We simplify expressions by combining like terms.

7. $(4x^2 + 5x) + (-7x^2 + x)$

$-3x^2 + 6x$

Degree = 2
Quadratic Binomial

1) Distribute
2) Combine Like Terms

8. $2(5x^2 - 4) + 4(3x^2 + 8x + 4)$

$10x^2 - 8 + 12x^2 + 32x + 16$

$22x^2 + 32x + 8$

Degree = 2
Quadratic Trinomial

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7-1 Practice

Form G

Adding Polynomials

Find the degree of each monomial.

1. $2b^2c^2$ — 4
2. $5x$ — 1
3. $7y^5$ — 5
4. $19ab$ — 2
5. 12 — 0
6. $\frac{1}{2}z^2$ — 2
7. t — 1
8. $4d^2e$ — 3

Simplify.

9. $2ab + 4ab$ — 6ab
10. $5x^2 + 4x^2$ — $9x^2$
11. $3m^2n + 5m^2n$ — $8m^2n$
12. $-6ab + 3ab$ — $-3ab$
13. $4c^2d^2 + 7c^2d^2$ — $11c^2d^2$
14. $315x^2 + 30x^2$ — $345x^2$

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

15. $15x - x^3 + 3$ — $-x^3+15x+3$; Cubic; Trinomial
16. $5x + 2x^2 - x + 3x^4$ — $3x^4+2x^2+4x$; Quartic; Trinomial
17. $9x^3$ — $9x^3$; Cubic; Monomial
18. $7b^2 + 4b$ — $7b^2+4b$; Quadratic; Binomial
19. $-3x^2 + 11 + 10x$ — $-3x^2+10x+11$; Quadratic; Trinomial
20. $12x^2 + 1 - 3x + 8 - 2x$ — $12x^2-5x+9$; Quadratic; Trinomial