Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples
POLYNOMIAL	An expression consisting of many terms. Examples: $5,\ -6x,\ 4x^2-1,\ 9x^3+4x^2-x-2$
STANDARD FORM	Must be written in alphabetical order, with the highest exponent first
EXAMPLES	**Directions:** Write each polynomial in standard form. **1.** $3x+1+2x^2$ → $2x^2+3x+1$ **2.** $k^2+64-k+7k^3$ → $7k^3+k^2-k+64$ **3.** w^3+5w^2+28-w → w^3+5w^2-w+28 **4.** $24-n^3+n$ → $-n^3+n+24$ **5.** $2ab+a^3+5a^2b^2-2b^3$ → $a^3+5a^2b^2+2ab-2b^3$ **6.** $13-c^3+5d^3-7c^2d^2$ → $-c^3-7c^2d^2+5d^3+13$
DEGREE	= highest exponent on the variable
CLASSIFYING POLYNOMIALS	**Polynomials are classified by their degree and number of terms.**

DEGREE		NUMBER OF TERMS	
0 ($x^0=1$)	Constant (just a number)	1	Monomial (nothing added or subtracted)
1 (x^1)	Linear (do not write the exponent "1")	2	Binomial
2 (x^2)	Quadratic	3	Trinomial
3 (x^3)	Cubic	4+	Polynomial
4 (x^4)	Quartic		

EXAMPLES	Directions: Classify each polynomial by degree and number of terms.	
	7. $6x^0$ → constant, monomial	**8.** $-2x^1$ → linear, monomial
	9. $7p^1+1$ → linear, binomial	**10.** v^2+2v-5 → quadratic, trinomial
	11. $4a^3-8$ → cubic, binomial	**12.** $2m^4-7m^2-5m+1$ → quartic, polynomial

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ADDING & SUBTRACTING Polynomials

You can add or subtract polynomials by simply combining like terms.

Addition Example	Subtraction Example
$(11x - x^2 + 13) + (2x^2 - 23 - 5x)$ $x^2 + 6x - 10$	$(4x^2 + 5x) - (7x + 3x^2 + 1)$ $x^2 - 2x - 1$

EXAMPLES

Directions: Find each sum or difference.

13. $(x+5)+(4x-7)$

$5x - 2$

14. $(k^2-4k+7)+(k^2+9k-3)$

$2k^2 + 5k + 4$

15. $(w^3-2w^2-5)+(3w^2-11)$

$w^3 + w^2 - 16$

16. $(9x-5y)+(3x+2y-7)$

$12x - 3y - 7$

17. $(8-p^2+5p)+(p^2-15-4p)$

$p - 7$

18. $(6a^2-5a)+(a-5a+3a^3)$

$3a^3 + 6a^2 - 9a$

19. $(x^2+17x)-(3x^2+5x)$

$-2x^2 + 12x$

20. $(5r-2s)-(9r-11s)$

$-4r + 9s$

21. $(4c-11)-(4c+11)$

-22

22. $(3m^2+7m-1)-(m^2+2m-5)$

$2m^2 + 5m + 4$

23. $(7v-v^2+14)-(15+8v+v^2)$

$-2v^2 - v - 1$

24. $(8x-3y)-(2y-13+5x)$

$3x - 5y + 13$

25. Find the sum of $(8p^2 - 2p + 15)$ and $(11 - 2p^2 - 1)$.

$6p^2 - 2p + 25$

26. Subtract $(2w^2 - 5w + 10)$ from $(w^3 + 6w^2 - 2)$.

$(w^3 + 6w^2 - 2) - (2w^2 - 5w + 10)$

$w^3 + 4w^2 + 5w - 12$

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