**Algebra**

***POLYNOMIALS***

Name _____

Period _____ Date _____

# *Classifying Polynomials*

Polynomials can be classified (named) by the **number of terms**.

| ***Polynomial*** | ***Number of terms*** | ***Name*** |
|---|---|---|
| $3x^2$ | 1 term | *monomial* |
| $5x-8$ | 2 terms | *binomial* |
| $4x^2-9x-10$ | 3 terms | *trinomial* |

Polynomials can also be classified by the **degree** (largest exponent of the variable).

| ***Polynomial*** | ***Degree*** | |
|---|---|---|
| $-24$ | 0 degree (no power of $x$) | |
| $2x-8$ | 1st degree ($x$ to the 1st power) | |
| $3x^2-7$ | 2nd degree ($x^2$) | |
| $12x^3+10$ | 3rd degree ($x^3$) | |

**DIRECTIONS:** Complete the table below.

| | ***Polynomial*** | ***Standard Form*** | ***Degree*** | ***Number of Terms*** | ***Name*** |
|---|---|---|---|---|---|
| 1. | $3-7x-9x^2$ | $-9x^2-7x+3$ | 2nd | 3 | *trinomial* |
| 2. | $5-6x^3$ | | | | |
| 3. | $-4$ | | | | |
| 4. | $-10+5x$ | | | | |
| 5. | $8x-2-6x^3$ | | | | |

**DIRECTIONS:** **Add** the polynomials. Write the answer in standard form.

6. $(5x^2+8x-10)$ + $(-12-x+3x^2)$

7. $(8x-x^3+4-9x^2)$ + $(7x^3+9x^2-10-8x)$

**DIRECTIONS:** **Subtract** the polynomials (***add the opposite***). Write the answer in standard form.

8. $(9x^2 - 4x + 8) - (12x^2 - 6x - 3)$

9. $(x - 2x^3 + 8 - 7x^2) - (8 + 5x - 3x^3)$

**10.1** Adding and Subtracting Polynomials

| | |
|---|---|
| 1. $(4x^2 - 2x + 8) + (x^2 + 3x - 2)$ | 2. $(4x^2 - 2x + 8) + (2x^2 + 2x - 5)$ |
| 3. $(5x^2 - x + 5) + (x^2 + x - 5)$ | 4. $(3x^2 - 3x + 4) + (x^2 + 3x - 6)$ |
| 5. $(2x^2 - 2x + 3) - (x^2 + 5x - 5)$ | 6. $(2x^2 - 4x + 8) - (x^2 + 3x - 1)$ |
| 7. $(6x^2 - 4x + 1) - (2x^2 + 6x - 1)$ | 8. $(6x^2 - 2x + 2) - (5x^2 + 2x - 2)$ |
| 9. $(7x^2 - 5x + 11) - (3x^2 + 2x - 11)$ | 10. $(7x^2 - 8x + 10) - (2x^2 + x + 10)$ |
| 11. State the degree of the monomial $7x^4$ | |