Name: _____ Date: _____

## Naming, Evaluating, and Combining Functions

**Polynomials are named according to their _____ and _____.**

| For a polynomial with one variable, the degree is the _____ exponent of that variable. | | | Terms are separated by _____ or _____. | | |
|---|---|---|---|---|---|
| **Degree** | **Name** | **Example** | **Terms** | **Name** | **Example** |
| 0 | | | 1 | | |
| 1 | | | 2 | | |
| 2 | | | 3 | | |
| 3 | | | 4+ | | |
| 4 | | | Examples:<br>　1.　$x^3 + 6x^2 + 12x + 8$<br>　2.　3<br>　3.　2x + 4 | | |
| 5 | | | | | |

## Standard Form

◎ The terms of a polynomial are in <u>standard form</u> if they are ordered from left to right in

　　_____ order; which means from the _____ exponent to the

　　least.

◎ The coefficient of the first term is called the _____.

◎ **Example**: Write $9 + x - 4x^3$ in Standard Form: _____

◎ **Example**: Write $3x^2 - 2 + 4x - 5x^3$ in Standard Form: _____

| Polynomial | Standard Form | Degree | # of Terms | NAME |
|---|---|---|---|---|
| 8x | | | | |
| $3 + 4x^2 + 2x$ | | | | |
| $5x^3 + x^2$ | | | | |
| $6 + 3x^2 - 4x - 2x^4$ | | | | |

| **Adding Polynomials:** | **Subtracting Polynomials:** |
|---|---|
| _____ | _____ |
| 1. $\left(a^2 + ab - 3b^2\right) + \left(4a^2 - ab + b^2\right)$ | 2. $\left(a^2 + ab - 3b^2\right) - \left(4a^2 - ab + b^2\right)$ |
| 3. $\left(2x^2 - 4x + 3\right) + \left(x^2 + 5x - 1\right)$ | 4. $\left(2 - x^2 + x\right) - \left(x^2 - 2x + 4\right)$ |

## Practice

Name the following polynomials by degree and number of terms.

1. $4x + 5$ 　　　　　　　　2. $3x^2 + 4x - 8$ 　　　　　　　　3. $-3x^2 + 7x^4 + 2x - 1$

4. $\left(4x^2 - 6x\right) + \left(3x^2 + 4x - 8\right)$ 　　　　　　5. $\left(x^2 - 3x + 2\right) - \left(5x^3 - 4x^2 + 1\right)$

6. $\left(8a^5 + 10a^3\right) - \left(13a^5 - 7a^3\right)$

A. $21a^5 + 3a^3$ 　　　　　B. $-5a^5 + 3a^3$ 　　　　　C. $12a^8$ 　　　　　D. $-5a^5 + 17a^3$

**Find and explain the mistake. Then solve the problem correctly.**

| Original Problem | Explanation of Mistake | Rework |
|---|---|---|
| $(2x^3 - 3x^2 + 5x - 1) - (3x^3 - 3x^2 - 2x + 4)$<br><br>$-x^3 - 6x^2 + 3x + 3$ | | |
| $(2x^3 - 2x^2 + 5x - 1) + (8x^2 - 3x + 4)$<br><br>$10x^3 - 5x^2 + 9x - 1$ | | |