

# Day 4: Polynomial Basics

Date \_\_\_\_\_

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## Coefficient

1) What is a coefficient? A \_\_\_\_\_ in front of a variable.

Ex:

## Constant

2) What is a constant? A \_\_\_\_\_ with NO variable.

Ex:

## Term of a polynomial

3) What is a term? A \_\_\_\_\_, a \_\_\_\_\_, or a \_\_\_\_\_ and \_\_\_\_\_ multiplied together.

Ex:

## Type of Polynomial

4) The Type of Polynomial depends on how many \_\_\_\_\_.

One Term: \_\_\_\_\_ Two Terms: \_\_\_\_\_

Three Terms: \_\_\_\_\_ Four or more Terms: \_\_\_\_\_

## The Polynomial Degree

5) The degree is defined by the \_\_\_\_\_ exponent on a variable.

Ex:  $x^6 - 5x^3 + 2x^2 - 7$  the degree is \_\_\_\_\_.

## With each polynomial identify the following information.

6)  $-10b - 1$

7)  $-2a^2 - 2a + 7$

Number of Terms:

Number of Terms:

Type:

Degree:

Type:

Degree:

Coefficient(s):

Constant:

Coefficient(s):

Constant:

8)  $-8$

Number of Terms:

Type:

Coefficient(s):

Degree:

Constant:

9)  $-r^5$

Number of Terms:

Type:

Coefficient(s):

Degree:

Constant:

10)  $-6x^5 - 8x^4 + 5x^3 - 10$

Number of Terms:

Type:

Coefficient(s):

Degree:

Constant:

11)  $-10n^4 + 3n^2$

Number of Terms:

Type:

Coefficient(s):

Degree:

Constant:

**Adding and Subtracting Polynomials**

12) A) Look at the \_\_\_\_\_ in between the polynomials

B) Do that operation (add or subtract) to \_\_\_\_\_ from each polynomial

\*Be careful when subtracting a negative\*

C) Make sure your solution is listed with the \_\_\_\_\_ exponent term first and working your way down.

**Add or subtract the polynomials.**

13)  $9(1 - 8x) - 50x$

14)  $4 - 6(9a - 4)$

15)  $4(p + 3) - 2(5p - 3)$

16)  $5(3 - 7x) - (1 - 6x)$

17)  $(8p^2 - 7p) - (p - p^2)$

18)  $(5 - 3m^2) - (6 - 8m^2)$

$$19) (2n - 7) + (2n + 3)$$

$$20) (k^3 - 3) + (5 + 6k^3)$$

$$21) (6 - 3k^3 - 8k^4) + (5 + 7k^4)$$

$$22) (7p - 7p^4 + 3p^2) - (6p^2 + 2p^4)$$

$$23) (4 - 3x) - (2 - x^2 - 2x)$$

$$24) (2n - 7) + (n + 4 + 3n^3)$$

$$25) (3b^2 + 1) - (4b^4 + 2b + 5 - 7b^2) - (8b^3 - 5b - b^4)$$

$$26) (2v + 5) - (8 + 4v + 4v^2 + 7v^3) + (2v^3 - 5v + 2)$$

**Factoring (or UN-distributing)**

27) Find the Greatest Common Factor (GCF) of \_\_\_\_\_ term in the polynomial.

This means the \_\_\_\_\_.

Put that number (and variable) in front of the parenthesis.

Divide each term by the GCF and put what is left inside parenthesis.

**Factor the common factor out of each expression.**

28)  $18k^5 + 42$

29)  $x^2 - 2x$

30)  $-20v^3 + 16v$

31)  $3a^4 + 6a^3$

32)  $-20x^5 + 16x + 6$

33)  $3m^2 - 6m^7 - 7m^4$

34)  $-6n - 3n^2 - 12n^3$

35)  $-32x^4 - 20x^3 - 12x^2$

36)  $4y^2x + 6y^2 - 14y$

37)  $60x^7y^6 - 30x^4y^5 - 18x^2y^3$

## Multiplying Polynomials

- 38) A) Multiply the \_\_\_\_\_ term of the first polynomial with \_\_\_\_\_ term in the second polynomial  
B) Multiply the \_\_\_\_\_ term of the first polynomial with \_\_\_\_\_ term in the second polynomial  
C) Continue if necessary; repeating the process with the other terms of the first polynomial  
\*Remember your signs\*  
D) Combine all like terms

### Find each product.

39)  $-4(6x - 1)$

40)  $(5n - 8)(n - 3)$

41)  $(n + 7)(n - 8)$

42)  $(6x - 4)(x + 4)$

43)  $(x + 6)^2$

44)  $(2b - 3)^2$

45)  $(n + 7)(3n^2 - 6n - 4)$

46)  $(4b^2 - 4b - 2)(2b + 1)$