

Sec 9-1: Adding and subtracting Polynomials

1. Define the word Monomial:

Monomial: An expression that is

- A number
- A variable (with or without an exponent)
- The product of two or more variables
- The product of a number and one or more variables

2. Is each of the below a monomial?

x
Yes

-32
Yes

m^4
Yes

$9.7Q^6$
Yes

$3a^2b$
Yes

$\frac{K}{6}$
 $\frac{1}{6} \cdot K$
Yes

$\frac{9}{N}$

NO

$9 \cdot \frac{1}{N}$

$9N^{-1}$

Monomials can't
have negative
exponents

Degree of a Monomial:

What is the degree of this Monomial $9c^4d^6$

The sum of the exponents of its variables.

$\text{deg} = 10$

What is the degree of each Monomial?

$7K$

$4x^3y^9z$

-25

6^2a^3b

$\text{deg} = 1$

$\text{deg} = 13$

$\text{deg} = 0$

$\text{deg} = 4$

Polynomial: The sum or difference of two or more Monomials.

Ex: $-25 + 3x - 6x^2 + 4x^3$

Standard form of a polynomial (in one variable):

$+4x^3 - 6x^2 + 3x - 25$

when the terms are arranged so that the term with the largest exponent is first and then the exponents decrease from Left to Right.
Simplify the expression first.

7.

a) $9m^2 + 3m^4 - 2m + m^2$
 $3m^4 + 10m^2 - 2m$

b) $2w^3 - w(2 + 3) + w^2$
 $-2w - 3w$
 $2w^3 - 5w + w^2$
 $2w^3 + w^2 - 5w$

9. Degree of 7a

4

Degree of 7b

3

Degree of a polynomial:

Degree of the monomial with the largest exponent
~~TERM~~

What is the degree of this polynomial?

Ex: $-25 + 3x - 6x^2 + 4x^3 \rightarrow \text{deg} = 3$

If written in Standard Form the degree of a polynomial is the first exponent.

10. Terms of a polynomial are separated by what math symbols?

ADDITION & SUBTRACTION

After you simplify a polynomial by combining like terms, you can name the polynomial based on its degree or the number of monomials it contains.

Polynomial	Degree	Name Using Degree	Number of Terms	Name Using Number of Terms
$7x + 4$	1	linear	2	binomial
$3x^2 + 2x + 1$	2	quadratic	3	trinomial
$4x^3$	3	cubic	1	monomial
$9x^4 + 11x$	4	fourth degree	2	binomial
5	0	constant	1	monomial

For each polynomial:

- Write it in Standard Form
- State its degree
- Name it using the degree
- Name it using the number of terms

12. $4 - 8y^3 + 7y$

- $-8y^3 + 7y + 4$
- 3
- Cubic
- trinomial

For each polynomial:

- Write it in Standard Form
- State its degree
- Name it using the degree
- Name it using the number of terms

13. $6a + 7a^2 - 4 + 8a - a^2$

- $6a^2 + 14a - 4$
- 2
- Quadratic
- trinomial

For each polynomial:

- Write it in Standard Form
- State its degree
- Name it using the degree
- Name it using the number of terms

$$9(2 - c) + 2c(3c + 7)$$

-
-
-
-

Find the sum or difference of each pair of polynomials
(Combining Like Terms)

1. $(4n^3 - 3n^2 + 7) - (6n^3 + 8n - 3)$

$$-2n^3 - 3n^2 - 8n + 10$$

2. $(e^2 + 6e - 9) + (3e - 4e^2 + 2)$

$$= -3e^2 + 9e - 7$$

Hwk #25

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pages 459-460

Problems 2-4, 10-14, 35, 36, 41, 51

Name each polynomial	By Degree	By # of Terms
1. $4a - 6a^3$	cubic	binomial
2. 1443	constant	monomial
3. $6r^2 - 7r + 8$	Quadratic	trinomial
4. $\frac{2}{3}x$	Linear	monomial
5. $9y^3 + 6y^5 - 11y^3$	5 th degree	binomial

State the degree of each.

1. $7m^4 + 6m - m^5 + 8$ 5

2. $14c(3c^2 - 8)$ 3
 $= 42c^3 - 112c$

3. $\cancel{3x} + 12 - \cancel{x} + 6 - \cancel{2x}$ 0
 $= 18$

4. $8r^3t^2$ 5