

Constant: a number

Monomial: a constant, variable
or a product of constants and variables

$$-5, 0, 17, \frac{3}{5}$$

$$3x^2yz^3, 2, x$$

Coefficient: the constant factor of a monomial.

$$3 \uparrow$$

Degree of a variable: the number of times a variable occurs in a monomial.

$$\text{degree: } 3, x^3$$

Degree of a monomial: the sum of the degrees of the variables in a monomial.

$$\text{degree: } 5$$

$$2xy^2z^2$$

Like Terms (similar monomials):
monomials that only differ by their numerical coefficients.

$$-7x^2y, 3x^2y$$

Polynomial: a monomial or sum of monomials (each monomial is called a term)

$$3x^3 + 2x^2y - 7xy^3$$

Simplified polynomial: a polynomial in which no two terms are like terms usually arranged in decreasing degree of one of the variables.

$$4xy + 2x^3 + 5xy$$

$$= 2x^3 + 9xy$$

Degree of a polynomial: found by Degree 4:
simplifying the polynomial and taking
the degree from the term with the largest
degree. $2x^4 - 3x^2y + 2x$

Ex 1) Simplify and arrange in descending degrees of x.

1a) $x + 5x^2 - 6 - 2x^2 + 3 - 4x$

$3x^2 - 3x - 3$

1b) $x^3y^3 - 7xy^6 + x^2y^2 + 3xy^6 - xy^6$

$x^3y^3 + x^2y^2 - 5xy^6$

Ex 2) Add $-3x^3 + 2x - 4$ and $4x^3 + 3x^2 + 2$

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

$x^3 + 3x^2 + 2x - 2$

Ex 3) Subtract the following polynomials:

$$(-x^3 + 3x^2 - 2x + 2) - (-x^3 + 5x^2 - 8x + 4)$$

Instead of subtracting, try adding the opposite of the second polynomial.

$$\begin{array}{r} (-x^3 + 3x^2 - 2x + 2) + (+x^3 - 5x^2 + 8x - 4) \\ \hline \end{array}$$

$-2x^2 + 6x - 2$