

# Algebraic expressions

It is a collection of one or more terms separated from each other by the signs + or -.

Algebraic expressions	No. of terms	Terms
$5x + 7y + 9z$	3	$5x, 7y, 9z$
$2x - 3y + z$	3	$2x, -3y, z$

Q.P.N  
16/7/22

Ex: -18 (B)

1. Consonants :-  $6, 7$  and  $0$  are consonants.  
Variables :-  $4y - 3x, 4xy, a, z, 7p, 9x, \frac{3}{4x}$ , and  $\frac{xz}{3y}$  are ~~variables~~ variables.

2. i)  $4x - 3x - \frac{2x}{3}, \frac{4y}{5}$

A)  $4x - x, \frac{2}{3}x$  and  $-3, \frac{4}{5}y$ .

ii)  $\frac{2}{3}xy, 4 - yz, 2yz, -\frac{2}{3}yz, \frac{2y}{3}$  and  $yx$ .

A)  $2 - xy, -4x, yx, 2yz$ .

iii)  $-ab^2, b^2a^2, 7b^2a, -3a^2b^2$  and  $2ab^2$

A)  $2ab^2$  and  $b^2a^2, -3a^2b^2$ .

iv)  $5ax, -5by, \frac{by}{7}, 7xa$  and  $\frac{2ax}{3}$

A)  $5ax, 7xa, \frac{2ax}{3}$  and  $5by, \frac{by}{7}$ .

- i) 16 is a constant and  $x$  is a variable, but  $16x$  is variable.
- ii)  $5x$  has two terms  $5$  and  $x$ .
- iii) The expression  $5+x$  has two terms  $5$  and  $x$ .
- iv) The expression  $2x^2 + x$  is a trinomial.
- v)  $ax^2 + bx + c$  is a trinomial.
- vi)  $8xab$  is a binomial.
- vii)  $8 + a + b$  is a binomial.
- viii)  $x^3 - 5xy + 6x + 7$  is a polynomial.
- ix)  $x^3 - 5xy + 6x + 7$  is a multiterminal.
- x) The coefficient of  $x$  in  $5x$  is  $5x$ .
- xi) The coefficient of  $a$  in  $-ab$  is  $-1$ .
- xii) The coefficient of  $y$  in  $-3xy$  is  $-3$ .

4. i)  $2a - b$

A  $\Rightarrow$  The number of terms in given expression is two

ii)  $3x + a/2$

A  $\Rightarrow$  The number of terms in given expression is two

iii)  $3x - x/p$

A  $\Rightarrow$  The number of terms in given expression is two.

iv)  $a \div x + b/c$

A  $\Rightarrow$  The number of terms in given expression is two.

v)  $3 \div 2 + y + 4$

A  $\Rightarrow$  The number of terms in given expression is three.

vi)  $xy \div 2$

A  $\Rightarrow$  The number of terms in given expression is one.

vii)  $x + y \div a$

A  $\Rightarrow$  The number of terms in given expression is two.

# Important Notes

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viii)  $2x + y + 8 \div y$

A) The number of terms in given expression is three.

ix)  $2x^2 + 3 \div b + t$

A) The number of terms in given expression is three.

i)  $xy$  and  $-yx$  are like terms.

ii)  $x^2y$  and  $-y^2x$  are like terms.

iii)  $a$  and  $-a$  are like terms.

iv)  ~~$a \div x + b + c - ba$~~  and  $2ab$  are ~~like~~ unlike terms.

v)  $5$  and  $5x$  are like terms.

vi)  $3xy$  and  $4xyz$  are unlike terms.

⑥ i)  $xy$

A) Monomial

ii)  $xy + x$

A) Binomial

iii)  $2x \div y$

A) ~~Binomial~~ Monomial

iv)  $-a$

A) Monomial

v)  $a^2x^2 - x + 5 =$  multinomial Trinomial

vi)  $-3bc + t$

A) Binomial

vii)  $1 + x + y$

A) ~~multinomial~~ Trinomial

viii)  $1 + x \div y =$  Binomial

ix)  $x + xy - y^2 =$  Trinomial

O.H.W  
20/7/22

EX: -18(B)

7.i)  $X = 1Xx$  in  $x$

A) Coefficient of  $X_1 = 1$

ii) ~~excuse~~

ii)  $-x$

A)  $-1Xx$  Coefficient =  $-1$

iii)  $-3X$

A)  $-3X1$  Coefficient =  $-3$

iv)  $-5ax$

A) Coefficient =  $-5a$

v)  $\frac{3}{2}XY$

A) Coefficient =  $\frac{3}{2}Y$

vi)  $\frac{ax}{y}$

A) Coefficient =  $\frac{a}{y}$

8.i)  $X$  in  $-3xy^2$

A) Coefficient =  $-3y^2$

ii)  $X$  in  $-ax$

A) Coefficient =  $-a$

iii)  $Y$  in  $-y$

Coefficient of  $Y$  in  $-y = -1$  |  $-y = -1XY = -1$

A) Coefficient =  $-1$

iv)  $xy$  in  $\frac{2}{a}xy$

A) Coefficient =  $\frac{2}{a}$

v)  $xy$  in  $-2XYZ$

A) Coefficient =  $-2Z$

vi)  $ax$  in  $-axy^2$

A) Coefficient =  $-y^2$

vii)  $x^2y$  in  $-3ax^2y$

A) Coefficient =  $-3a$

viii)  $xy^2$  in  $5axy^2$

A) Coefficient =  $5a$

9. i)  $5xy$

A) Numerical Coefficient of  $5xy = 5 \times 1 \times 1 = 5$

ii)  $abc$

A) Numerical Coefficient of  $abc = 1$

iii)  $5pqr$

A) Numerical Coefficient of  $5pqr = 5 \times 1 = 5$

iv)  $-\frac{2x}{y}$

A) Numerical Coefficient of  $-\frac{2x}{y} = -2$

v)  $\frac{2}{3}xy^2$

A) Numerical Coefficient of  $\frac{2}{3}xy^2 = \frac{2}{3}$

vi)  $\frac{-15XY}{2Z}$

A) Numerical Coefficient of  $= \frac{15}{2} X^{-1} = \frac{-15}{2}$

vii)  $-7X \div Y$

A) Numerical Coefficient of  $= -7X \div Y = -7$

viii)  $-3X \div (2Y)$

A) Numerical Coefficient of  $= \frac{-3X}{2Y} = \frac{-3}{2}$

o.c.w  
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Polynomials of two or more variables and their degree

$$5x^3 + 6x^2y^2 + 8x^3y^2 - 9y^5$$

The sum of Powers of the variables in  $5x^3 = 3$

Sum of Powers of the variables  $6x^2y^2 = 2+2=4$

Sum of Powers of the variables in  $8x^3y^2 = 3+2=5$

Sum of Powers of the variables in  $9y^5 = 5$

Greatest of these sums = 5

5 = degree of polynomial

Ex-18(B)

$x+x^2 =$  Powers of variable  $x = 1$

$1 \times 2 = 2$

(1a) i) Degree = 2

ii)  $5x^2 - 7x + 2 =$  Powers of variable = 1

$x \times 2 = 2$

Degree = 2

iii)  $x^3 - x^8 + x^{10}$

A → Powers of Variables = 3

$3, 8 \text{ and } 10 - x \times 3 = 3, x \times 8 = 8, x \times 10 = 10$   
Greatest degree = 10

iv)  $1 - 100x^{20}$

A → Powers of Variables = 1

$x \times 20 = 20$

Degree = 20

v)  $4 + 4x - 4x^3$

A → Powers of Variables = 1

$x \times 3 = 3$

Degree = 3

vi)  $8x^2y - 3y^2 + x^2y^5$

A → Powers of Variables = 4

Sum of Powers of the variables in  $8x^2y = 2 + 1 = 3$

Sum of Powers of the variables in  $3y^2 = 2$

Sum of Powers of the variables in  $x^2y^5 = 2 + 5 = 7$

Degree = 7

vii)  $8z^3 - 8y^2z^3 + 7yz^5$

A → Powers of Variables = 4

Sum of Variables in  $8z^3 = 3$

Sum of Power of the variables in  $8y^2z^3 = 3 + 2 = 5$



Sum of Power of the Variables = 5  
~~= 5 \* 1 = 6~~

VIII)  $4y^2 - 3x^3 + y^2x^7$

A → Sum of Power of the Variables in  $4y^2 = 2$   
Sum of Power of the Variables in  $3x^3 = 3$   
Sum of Power of the Variables in  $y^2x^7 = 7 + 2 = 9$   
 $= 9 \times x = 9 =$  The Greatest Degree = Degree = 9

