



NCERT solutions for class 8 maths algebraic expressions and identities 9.1

Q1. Identify the terms, their coefficients for each of the following expressions:

(i) $5xyz^2 - 3zy$

(ii) $1 + x + x^2$

(iii) $4x^2y^2 - 4x^2y^2z^2 + z^2$

(iv) $3 - pq + qr - rp$

(v) $\frac{x}{2} + \frac{y}{2} - xy$

(vi) $0.3a - 0.6ab + 0.5b$

Ans: (i) Terms: $5xyz^2$ and $-3zy$

Coefficient in $5xyz^2$ is 5 and in $-3zy$ is -3 .

(ii) Terms: 1, x and x^2 .

Coefficient of x and coefficient of x^2 is 1.

(iii) Terms: $4x^2y^2$, $-4x^2y^2z^2$ and z^2 .

Coefficient in $4x^2y^2$ is 4, coefficient of $-4x^2y^2z^2$ is -4 and coefficient of z^2 is 1.

(iv) Terms: 3, $-pq$, qr and $-rp$

Coefficient of $-pq$ is -1 , coefficient of qr is 1 and coefficient of $-rp$ is -1 .

(v) Terms: $\frac{x}{2}$, $\frac{y}{2}$ and $-xy$

Coefficient of $\frac{x}{2}$ is $\frac{1}{2}$, coefficient of $\frac{y}{2}$ is $\frac{1}{2}$ and coefficient of $-xy$ is -1 .

(vi) Terms: $0.3a$, $-0.6ab$ and $0.5b$

Coefficient of $0.3a$ is 0.3 , coefficient of $-0.6ab$ is -0.6 and coefficient of $0.5b$ is 0.5 .

Q2. Classify the following polynomials as monomials, binomials, trinomials. Which polynomials do not fit in any of these three categories:

$x + y$, 1000 , $x + x^2 + x^3 + x^4$, $7 + y + 5x$, $2y - 3y^2$,
 $2y - 3y^2 + 4y^3$, $5x - 4y + 3xy$, $4z - 15z^2$,
 $ab + bc + cd + da$, pqr , $p^2q + pq^2$, $2p + 2q$

Ans: (i) Since $x + y$ contains two terms. Therefore it is binomial.

(ii) Since 1000 contains one terms. Therefore it is monomial.

(iii) Since $x + x^2 + x^3 + x^4$ contains four terms.
Therefore it is a polynomial and it does not fit in
above three categories.

(iv) Since $7 + y + 5x$ contains three terms.
Therefore it is trinomial.

(v) Since $2y - 3y^2$ contains two terms. Therefore
it is binomial.

(vi) Since $2y - 3y^2 + 4y^3$ contains three terms.
Therefore it is trinomial.

(vii) Since $5x - 4y + 3xy$ contains three terms.
Therefore it is trinomial.

(viii) Since $4x - 15z^2$ contains two terms.
Therefore it is binomial.

(ix) Since $ab + bc + cd + da$ contains four terms.
Therefore it is a polynomial and it does not fit in
above three categories.

(x) Since pqr contains one terms. Therefore it
is monomial.

(xi) Since $p^2q + pq^2$ contains two terms.
Therefore it is binomial.

(xii) Since $2p + 2q$ contains two terms.
Therefore it is binomial.

Q3. Add the following:

(i) $ab - bc, bc - ca, ca - ab$

(ii) $a - b + ab, b - c + bc, c - a + ac$

(iii) $2p^2q^2 - 3pq + 4, 5 + 7pq - 3p^2q^2$

(iv) $l^2 + m^2, m^2 + n^2, n^2 + l^2 + 2lm + 2mn + 2nl$

Ans: (i) $ab - bc, bc - ca, ca - ab$

$$\begin{array}{r} ab - bc \\ + bc - ca \\ - ab + ca \\ \hline 0 + 0 + 0 \end{array}$$

(ii) $a - b + ab, b - c + bc, c - a + ac$

$$\begin{array}{r} a - b - ab \\ + b - c + bc \\ - a + c + ac \\ \hline 0 + 0 + ab + 0 + bc + ac \end{array}$$

Hence the sum is 0.

Hence the sum is $ab + bc + ac$.

(iii) $2p^2q^2 - 3pq + 4, 5 + 7pq - 3p^2q^2$

$$\begin{array}{r} 2p^2q^2 - 3pq + 4 \\ -3p^2q^2 + 7pq + 5 \end{array}$$

$$\boxed{-p^2q^2 + 4pq + 9}$$

(iv) $l^2 + m^2, m^2 + n^2, n^2 + l^2, 2lm + 2mn + 2nl$

$$\begin{array}{r} l^2 + m^2 \\ + \quad m^2 + n^2 \\ + l^2 \quad + n^2 \\ + \quad \quad \quad 2lm + 2mn + 2nl \\ \hline 2l^2 + 2m^2 + 2n^2 + 2lm + 2mn + 2nl \end{array}$$

Hence the sum is $-p^2q^2 + 4pq + 9$.

Hence the sum is

$$2(l^2 + m^2 + n^2 + lm + mn + nl)$$

4. (a) Subtract $4a - 7ab + 3b + 12$ **from**
 $12a - 9ab + 5b - 3$.

(b) Subtract $3xy + 5yz - 7zx$ **from**
 $5xy - 2yz - 2zx + 10xyz$.

(c) Subtract $4p^2q - 3pq + 5pq^2 - 8p + 7q - 10$
from $18 - 3p - 11q + 5pq - 2pq^2 + 5p^2q$.

Ans: (a)

$$\begin{array}{r} 12a - 9ab + 5b - 3 \\ 4a - 7ab + 3b + 12 \\ (-) \quad (+) \quad (-) \quad (-) \\ \hline 8a - 2ab + 2b - 15 \end{array}$$

(b)

$$\begin{array}{r} 5xy - 2yz - 2zx + 10xyz \\ 3xy + 5yz - 7zx \\ (-) \quad (-) \quad (+) \\ \hline 2xy - 7yz + 5zx + 10xyz \end{array}$$

(c)

$$\begin{array}{r} 5p^2q - 2pq^2 + 5pq - 11q - 3p + 18 \\ 4p^2q + 5pq^2 - 3pq + 7q - 8p - 10 \\ (-) \quad (-) \quad (+) \quad (-) \quad (+) \quad (+) \\ \hline p^2q - 7pq^2 + 8pq - 18q + 5p + 28 \end{array}$$

***** END *****

