

RD SHARMA

Solutions

Class 8 Maths

Chapter 6

Ex 6.1

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

(i) $7x^2yz - 5xy$

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

(iii) $3x^2y^2 - 5x^2y^2z^2 + z^2$

(iv) $9 - ab + bc - ca$

(v) $\frac{a}{2} + \frac{b}{2} - ab$

(vi) $0.2x - 0.3xy + 0.5y$

Solution:

Definitions:

A term in an algebraic expression can be a constant, a variable or a product of constants and variables separated by the signs of addition (+) or subtraction (-).
Examples: 27, x, xyz, $\frac{1}{2}x^2yz$ etc.

The number factor of the term is called its coefficient.

(i) The expression $7x^2yz - 5xy$ consists of two terms, i.e., $7x^2yz$ and $-5xy$.

The coefficient of $7x^2yz$ is 7 and the coefficient of $-5xy$ is -5.

(ii) The expression $x^2 + x + 1$ consists of three terms, i.e., x^2 , x and 1.

The coefficient of each term is 1.

(iii) The expression $3x^2y^2 - 5x^2y^2z^2 + z^2$ consists of three terms, i.e., $3x^2y^2$, $-5x^2y^2z^2$ and z^2 .

The coefficient of $3x^2y^2$ is 3.

The coefficient of $-5x^2y^2z^2$ is -5 and the coefficient of z^2 is 1.

(iv) The expression $9 - ab + bc - ca$ consists of four terms -9, -ab, bc and -ca.

The coefficient of the term 9 is 9.

The coefficient of -ab is -1.

The coefficient of bc is 1, and the coefficient of -ca is -1.

(v) The expression $\frac{a}{2} + \frac{b}{2} - ab$ consists of three terms, i.e., $\frac{a}{2}$, $\frac{b}{2}$ and $-ab$.

The coefficient of $\frac{a}{2}$ is $\frac{1}{2}$.

The coefficient of $\frac{b}{2}$ is $\frac{1}{2}$ and the coefficient of -ab is -1.

(vi) The expression $0.2x - 0.3xy + 0.5y$ consists of three terms, i.e., $0.2x$, $-0.3xy$ and $0.5y$.

The coefficient of $0.2x$ is 0.2.

The coefficient of $-0.3xy$ is -0.3, and the coefficient of $0.5y$ is 0.5.

Q2) Classify the following polynomials as monomials, binomials, trinomials. Which polynomials do not fit in any category?

(i) $x + y$

(ii) 1000

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

(iv) $7 + a + 5b$

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

(vi) $2y - 3y^2 + 4y^3$

(vii) $5x - 4y + 3x$

(viii) $4a - 15a^2$

(ix) $xy + yz + zt + tx$

(x) pqr

(xi) $p^2q + pq^2$

(xii) $2p + 2q$

Solution:

Definitions:

A polynomial is monomial if it has exactly one term. It is called binomial if it has exactly two non-zero terms. A polynomial is a trinomial if it has exactly three non-zero terms.

(i) The polynomial $x + y$ has exactly two non zero terms, i.e., x and y . Therefore, it is a binomial.

(ii) The polynomial 1000 has exactly one term, i.e., 1000 . Therefore, it is a monomial.

(iii) The polynomial $x + x^2 + x^3 + x^4$ has exactly four terms, i.e., x , x^2 , x^3 and x^4 . Therefore, it doesn't belong to any of the categories.

(iv) The polynomial $7 + a + 5b$ has exactly three terms, i.e., 7 , a and $5b$. Therefore, it is a trinomial.

(v) The polynomial $2b - 3b^2$ has exactly two terms, i.e., $2b$ and $-3b^2$. Therefore, it is a binomial.

(vi) The polynomial $2y - 3y^2 + 4y^3$ has exactly three terms, i.e., $2y$, $3y^2$ and $4y^3$. Therefore, it is a trinomial.

(vii) The polynomial $5x - 4y + 3x$ has exactly three terms, i.e., $5x$, $-4y$ and $3x$. Therefore, it is a trinomial.

(viii) The polynomial $4a - 15a^2$ has exactly two terms, i.e., $4a$ and $-15a^2$. Therefore, it is a binomial.

(ix) The polynomial $xy + yz + zt + tx$ has exactly four terms xy , yz , zt and tx . Therefore, it doesn't belong to any of the categories.

(x) The polynomial pqr has exactly one term, i.e., pqr . Therefore, it is a monomial.

(xi) The polynomial $p^2q + pq^2$ has exactly two terms, i.e., p^2q and pq^2 . Therefore, it is a binomial.

(xii) The polynomial $2p + 2q$ has two terms, i.e., $2p$ and $2q$. Therefore, it is a binomial.