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  $\frac{1}{2}$ .

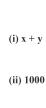
The coefficient of  $\frac{b}{2}$  is  $\frac{1}{2}$  and the coefficient of -ab is -1.

(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?



# (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.