RD SHARMA

Solutions

Class 8 Maths

Chapter 8

Ex 8.1

Question 1: Write the degree of each of the following polynomials:

Soln:

(i) $2x^3+5x^2-7$

It is $2x^3+5x^2-7$ instead of $2x^2+5x^2-7$

The degree of the polynomial $2x^3+5x^2-7$ is 3

(ii) $5x^2-35x+2$

The degree of the polynomial $5x^2-35x+2$ is 2

(iii) $2x+x^2-8$

The degree of the polynomial $2x+x^2-8$ is 2

(iv) $\frac{1}{2}y^7 - 12y^6 + 48y^5 - 10$

The degree of the polynomial $\frac{1}{2}y^7 - 12y^6 + 48y^5 - 10$ is 7

(v) $3x^3+1$

The degree of the polynomial $3x^3+1$ is 3

(vi) 5

5 is a constant polynomial and its degree is 0.

(vii) $20x^3+12x^2y^2-10y^2+20$

The degree of the polynomial $20x^3+12x^2y^2-10y^2+20$ is 4

Question 2

Which of the following expressions are not polynomials:

Soln:

(i) x^2+2x^{-2}

x^2+2x^{-2} is not a polynomial because -2 is the power of variable x is not a non negative integer.

(ii) $\sqrt{ax} + x^2 - x^3$

$\sqrt{ax} + x^2 - x^3$ is not a polynomial because $\frac{1}{2}$ is the power of variable x is not a non negative integer.

(iii) $3y^3 - \sqrt{5}y + 9$

$3y^3 - \sqrt{5}y + 9$ is a polynomial because the powers of variable y are non negative integers.

(iv) $ax^{\frac{1}{2}} + ax + 9x^2 + 4$

$ax^{\frac{1}{2}} + ax + 9x^2 + 4$ is not a polynomial because $\frac{1}{2}$ is the power of variable x is not a non negative integer.

(v) $3x^{-2}+2x^{-1}+4x+5$

$3x^{-2}+2x^{-1}+4x+5$ is not a polynomial because -2 and -1 are the powers of variable x are not non negative integers.

Question 3

Write each of the following polynomials in the standard form. Also, write their degree:

Soln:

(i) $(x^2+3+6x+5x^4)$

The standard form of the given polynomial can be expressed as:

$(5x^4+x^2+6x+3)$ or $(3+6x+x^2+5x^4)$

The degree of the polynomial is 4

(ii) a^2+4+5a^6

The standard form of the given polynomial can be expressed as:

$(5a^6+a^2+4)$ or $(4+a^2+5a^6)$

The degree of the polynomial is 6

(iii) $(x^3-1)(x^3-4)$

$(x^3-1)(x^3-4) = x^6-5x^3+4$

The standard form of the given polynomial can be expressed as:

(x^6-5x^3+4) or $(4-5x^3+x^6)$

The degree of the polynomial is 6

(iv) $(y^3-2)(y^3+11)$

$(y^3-2)(y^3+11) = y^6+9y^3-22$

The standard form of the given polynomial can be expressed as:

(y^6+9y^3-22) or $(-22+9y^3+y^6)$

The degree of the polynomial is 6

(v) $\left(a^3 - \frac{3}{8}\right)\left(a^3 + \frac{16}{17}\right)\left(a^3 - \frac{3}{8}\right)\left(a^3 + \frac{16}{17}\right) = a^3 + \frac{77}{136}a^3 - \frac{6}{17}$

Standard form of the given polynomial can be expressed as:

$\left(a^3 + \frac{77}{136}a^3 - \frac{6}{17}\right)$ or $\left(-\frac{6}{17} + \frac{77}{136}a^3 + a^3\right)$

The degree of the polynomial is 6.

(vi) $\left(a + \frac{3}{4}\right)\left(a + \frac{4}{3}\right)\left(a + \frac{3}{4}\right)\left(a + \frac{4}{3}\right) = a^2 + \frac{25}{12}a + 1$

Standard form of the given polynomial can be expressed as:

$\left(a^2 + \frac{25}{12}a + 1\right)$ or $\left(1 + \frac{25}{12}a + a^2\right)$

The degree of the polynomial is 2