

Maharashtra Board Solutions Class 9-Maths

(Part 1): Chapter 3.1- Polynomials

BOOK SOLUTIONS
CLASS 9
MATHS

CHAPTER 3.1
Polynomials



Maharashtra Board Solutions→

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Maharashtra Board Solutions Class 9-Maths

(Part 1): Chapter 3.1- Polynomials

Class 9: Maths Chapter 3.1 solutions. Complete Class 9 Maths Chapter 3.1 Notes.

Maharashtra Board Solutions Class 9-Maths (Part 1): Chapter 3.1- Polynomials

Maharashtra Board 9th Maths Chapter 3.1, Class 9 Maths Chapter 3.1 solutions

Question 1.

State whether the given algebraic expressions are polynomials? Justify.

i. $y + 1y$

ii. $2 - 5\sqrt{x}$

iii. $x^2 + 7x + 9$

iv. $2m^{-2} + 7m - 5$

v. 10

Answer:

i. No, because power of v in the term $5\sqrt{x}$ is -1 (negative number).

ii. No, because the power of x in the term $5\sqrt{x}$ is

i. e. 0.5 (decimal number).

iii. Yes. All the coefficients are real numbers. Also, the power of each term is a whole number.

iv. No, because the power of m in the term $2m^{-2}$ is -2 (negative number).

v. Yes, because 10 is a constant polynomial.

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Question 2.

Write the coefficient of m^3 in each of the given polynomial.

i. m^3

ii. $2 - \sqrt{-3} + m - \sqrt{3}m^3$

iii. $3 - \sqrt{-2}m^3 + 5m^2 - 7m - 1$

Answer:

i. 1

ii. $-\sqrt{3}$

iii. -23

Question 3.

Write the polynomial in x using the given information. [1 Mark each]

i. Monomial with degree 7

ii. Binomial with degree 35

iii. Trinomial with degree 8

Answer:

i. $5x^7$

ii. $x^{35} - 1$

iii. $3x^8 + 2x^6 + x^5$

Question 4.

Write the degree of the given polynomials.

i. $\sqrt{5}$

ii. x°

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iii. x^2

iv. $\sqrt{2}m^{10} - 7$

v. $2p - \sqrt{7}$

vi. $7y - y^3 + y^5$

vii. $xyz + xy - z$

viii. $m^3n^7 - 3m^5n + mn$

Answer:

i. $\sqrt{5} = \sqrt{5} x^0$

$\therefore$ Degree of the polynomial = 0

ii. x^0

$\therefore$ Degree of the polynomial = 0

iii. x^2

$\therefore$ Degree of the polynomial = 2

iv. $\sqrt{2}m^{10} - 7$

Here, the highest power of m is 10.

$\therefore$ Degree of the polynomial = 10

v. $2p - \sqrt{7}$

Here, the highest power of p is 1.

$\therefore$ Degree of the polynomial = 1

vi. $7y - y^3 + y^5$

Here, the highest power of y is 5.

$\therefore$ Degree of the polynomial = 5

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vii. $xyz + xy - z$

Here, the sum of the powers of x, y and z in the term xyz is $1 + 1 + 1 = 3$,
which is the highest sum of powers in the given polynomial.

$\therefore$ Degree of the polynomial = 3

viii. $m^3n^7 - 3m^5n + mn$

Here, the sum of the powers of m and n in the term m^3n^7 is $3 + 7 = 10$,
which is the highest sum of powers in the given polynomial.

$\therefore$ Degree of the polynomial = 10

Question 5.

Classify the following polynomials as linear, quadratic and cubic polynomial. [2 Marks]

i. $2x^2 + 3x + 1$

ii. $5p$

iii. $\sqrt{2} - 12$

iv. $m^3 + 7m^2 + 2 - \sqrt{5}m - \sqrt{7}$

v. a^2

vi. $3r^3$

Answer:

Linear polynomials: ii, iii

Quadratic polynomials: i, v

Cubic polynomials: iv, vi

Question 6.

Write the following polynomials in standard form.

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i. $m^3 + 3 + 5m$

ii. $-7y + y^5 + 3y^3 - 12 + 2y^4 - y^2$

Answer:

i. $m^3 + 5m + 3$

ii. $y^5 + 2y^4 + 3y^3 - y^2 - 7y - 12$

Question 7.

Write the following polynomials in coefficient form.

i. $x^3 - 2$

ii. $5y$

iii. $2m^4 - 3m^2 + 7$

iv. -23

Answer:

i. $x^3 - 2 = x^3 + 0x^2 + 0x - 2$

∴ Coefficient form of the given polynomial = (1, 0, 0, -2)

ii. $5y = 5y + 0$

∴ Coefficient form of the given polynomial = (5, 0)

iii. $2m^4 - 3m^2 + 7$

$= 2m^4 + 0m^3 - 3m^2 + 0m + 7$

∴ Coefficient form of the given polynomial = (2, 0, -3, 0, 7)

iv. -23

∴ Coefficient form of the given polynomial = (-23)

Question 8.

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Write the polynomials in index form.

- i. (1, 2, 3)
- ii. (5, 0, 0, 0, -1)
- iii. (-2, 2, -2, 2)

Answer:

i. Number of coefficients = 3

$$\therefore \text{Degree} = 3 - 1 = 2$$

$\therefore$ Taking x as variable, the index form is $x^2 + 2x + 3$

ii. Number of coefficients = 5

$$\therefore \text{Degree} = 5 - 1 = 4$$

$\therefore$ Taking x as variable, the index form is $5x^4 + 0x^3 + 0x^2 + 0x - 1$

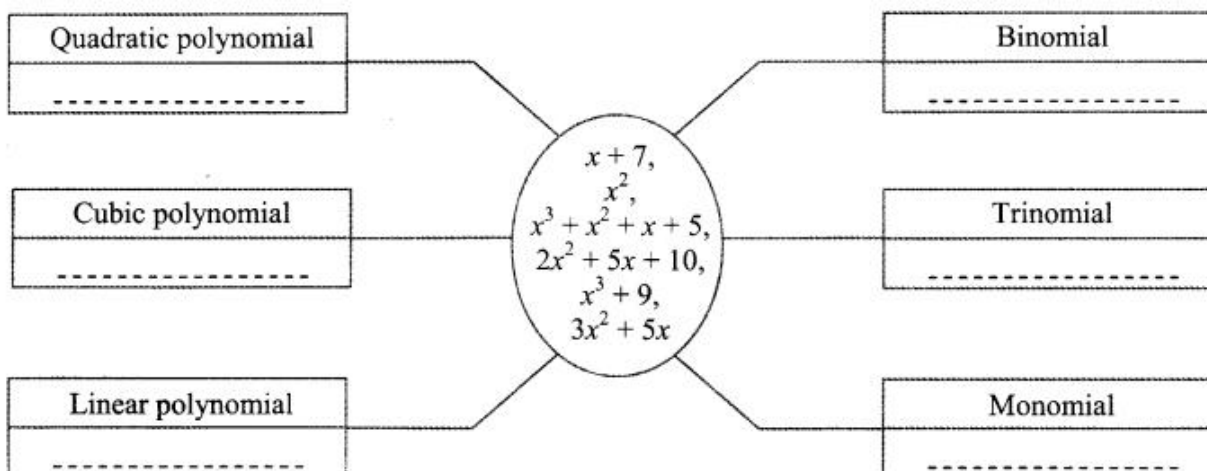
iii. Number of coefficients = 4

$$\therefore \text{Degree} = 4 - 1 = 3$$

$\therefore$ Taking x as variable, the index form is $-2x^3 + 2x^2 - 2x + 2$

Question 9.

Write the appropriate polynomials in the boxes.



Answer:

i. Quadratic polynomial: x^2 ; $2x^2 + 5x + 10$; $3x^2 + 5x$

ii. Cubic polynomial: $x^3 + x^2 + x + 5$; $x^3 + 9$

iii. Linear polynomial: $x + 7$

iv. Binomial: $x + 7$; $x^3 + 9$; $3x^2 + 5x$

v. Trinomial: $2x^2 + 5x + 10$

vi. Monomial: x^2

Question 1.

Write an example of a monomial, a binomial and a trinomial having variable x and degree 5. (Textbook pg. no. 3)

Answer:

Monomial: x^5

Binomial: $x^5 + x$

Trinomial: $2x^5 - x^2 + 5$

Question 2.

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Give example of a binomial in two variables having degree 5. (Textbook pg. no. 38)

Answer:

$$x^3y^2 + xy$$



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- Chapter 7.5- Statistics

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The Maharashtra State Board of Secondary and Higher Secondary Education or MSBSHSE (Marathi: महाराष्ट्र राज्य माध्यमिक आणि उच्च माध्यमिक शिक्षण मंडळ), is an **autonomous and statutory body established in 1965**. The board was amended in the year 1977 under the provisions of the Maharashtra Act No. 41 of 1965.

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The Maharashtra government established the Maharashtra State Bureau of Textbook Production and Curriculum Research, also commonly referred to as Ebalbharati, in 1967 to take up the responsibility of providing quality textbooks to students from all classes studying under the Maharashtra State Board. MSBHSE prepares and updates the curriculum to provide holistic development for students. It is designed to tackle the difficulty in understanding the

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concepts with simple language with simple illustrations. Every year around 10 lakh students are enrolled in schools that are affiliated with the Maharashtra State Board.

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How many state boards are there in Maharashtra?

The Maharashtra State Board of Secondary & Higher Secondary Education, conducts the HSC and SSC Examinations in the state of Maharashtra through its nine Divisional Boards located at Pune, Mumbai, Aurangabad, Nasik, Kolhapur, Amravati, Latur, Nagpur and Ratnagiri.

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