

CHAPTER-2 | Polynomials

QUIZ  
PART-03

1. Which of the following expressions are polynomials in one variable, and which are not? State reasons for your answer.  $4x^2-3x+7$ ,  $2y^2+3$ ,  $3t^2+t$ ,  $\frac{1}{y}+x^2$
- A. Polynomial (degree 2, single variable x)
  - B. Polynomial (degree 2, single variable y)
  - C. Polynomial (degree 2, single variable t)
  - D. Not a polynomial (contains  $\frac{1}{y}$ , which has a negative exponent). (D)

**Explanation:** A polynomial must have only non-negative integer exponents and one variable.

2. Write the coefficients of  $x^2$  in each of the following:  $2+x^2+x$ ,  $2-x^2+x^3$ ,  $\pi+2x+2x^2$
- A. 1, -1, 2
  - B. 2, -1, 2
  - C. 2, 0, 0
  - D. 1, 1, 1 (B)

**Explanation:** The coefficient of  $x^2$  is the number multiplying the  $x^2$  term in the polynomial. In each case, it is 2, -1, and 2 respectively.

3. Give one example each of a binomial of degree 3 and a monomial of degree 100.
- A.  $x^3+x^2$  (binomial degree 3),  $x^{100}$  (monomial degree 100)
  - B.  $x^2+x$  (binomial degree 2),  $x^{100}$  (monomial degree 100)
  - C.  $x^2+1$  (binomial degree 2),  $x^{100}$  (monomial degree 101)
  - D.  $x^3+1$  (binomial degree 3),  $x^{100}$  (monomial degree 99) (A)

**Explanation:** A binomial has exactly two terms and a monomial has one term. The degrees are calculated by the highest exponent of the variable.

4. Write the degree of each of the following polynomials:  $5x^3+4x^2+7x$ ,  $4-y^2$ ,  $5t-1$
- A. 3, 2, 1
  - B. 3, 2, 0
  - C. 3, 1, 0
  - D. 2, 2, 1 (A)

**Explanation:** The degree is the highest exponent of the variable in the polynomial,  $5x^3+4x^2+7x$  has a degree of 3,  $4-y^2$  has a degree of 2, and  $5t-1$  has a degree of 1.

5. Classify the following as linear, quadratic, and cubic polynomials:  $x^2+x$ ,  $x-x^3$ ,  $y+y^2+4$ ,  $1+x$ ,  $3t$ ,  $r^2$ ,  $7x^3$
- A. Linear, Cubic, Quadratic, Linear, Linear, Quadratic, Cubic
  - B. Quadratic, Cubic, Quadratic, Linear, Linear, Quadratic, Cubic
  - C. Quadratic, Linear, Quadratic, Linear, Linear, Quadratic, Cubic
  - D. Linear, Quadratic, Linear, Linear, Linear, Quadratic, Cubic (B)

**Explanation:** A linear polynomial has degree 1, quadratic has degree 2, and cubic has degree 3. The classifications are based on their highest exponents.

6. Which of the following polynomials is of degree 2?
- A.  $x^3+4x^2+x+5$
  - B.  $2x^2+3x+7$
  - C.  $x+3$
  - D.  $5x^4+2x^3+x$  (B)

**Explanation:** The degree of the polynomial is determined by the highest exponent of x. Here  $2x^2+3x+7$  has degree 2.

7. Which of the following polynomials is linear?
- A.  $x^2+2x+1$
  - B.  $x+1$
  - C.  $x^3+x$
  - D.  $x^4+5x+1$  (B)

**Explanation:** A linear polynomial has degree 1.  $x+1$  is a linear polynomial because it has degree 1.

8. Which of the following is a constant polynomial?
- A.  $2x+3$
  - B.  $x^2+5x$
  - C. 5
  - D.  $3x^3+2x+1$  (C)

**Explanation:** A constant polynomial is a polynomial with no variable. The number 5 is a constant polynomial.

9. What is the degree of the polynomial  $4x^2-3x+2$ ?
- A. 2
  - B. 3
  - C. 1
  - D. 0 (A)

**Explanation:** The degree of a polynomial is determined by the highest power of the variable. Here, the degree is 2 because  $x^2$  is the highest power.

10. Which of the following is the correct form of a monomial?
- A.  $x^3+3x+2$
  - B.  $x^2$
  - C.  $x+y$
  - D.  $3x^2+2y^2$  (B)

**Explanation:** A monomial has only one term, and  $x^2$  is a single term. Other options contain multiple terms, so they are not monomials.