Types of Algebraic Expression

Understanding of Types of Algebraic Expressions

- Algebraic expressions are classified based on the number of terms they have.
- A term is a part of the expression separated by + or – signs.
- Types of algebraic expressions depend on how many terms they include.

Important Points

- **Monomial:** An expression with one term. Example: $3x$, $-5a^2$, 7
- **Binomial:** An expression with two terms. Example: $x + 2$, $3a - 4b$
- **Trinomial:** An expression with three terms. Example: $x^2 + 2x + 1$
- **Polynomial:** An expression with one or more terms (can be monomial, binomial, trinomial, or more terms).

  Example: $2x^3 + 3x^2 - x + 5$
- **Degree of Expression:** The highest exponent (power) of the variable in the expression.

Examples with Solutions

Example: Monomial

➢ **$5xy$**

Solution: Only one term ($5xy$) is present.

Hence, it is a monomial.

Example: Binomial

➢ **Expression: $2x - 7$**

Solution: Two terms are present: $2x$ and -7.

Hence, it is a binomial.

Example: Trinomial

➢ **Expression: $a^2 + 2a + 1$**

Solution: Three terms are present: a^2, $2a$, and 1.

Hence, it is a trinomial.

Example: Polynomial with Four Terms

- **Expression: $3x^3 – 5x^2 + 2x – 8$**

Solution: Four terms: $3x^3$, $–5x^2$, $2x$, $–8$

Hence, it is a polynomial (not specifically called monomial, binomial, or trinomial).

Example: Finding Degree of Expression

- **Expression: $4x^4 – 3x^2 + 2$**

Solution: Degree = Highest exponent = 4

So, the degree of the polynomial is 4.

Summary Points

- **Monomial:** 1 term
- **Binomial:** 2 terms
- **Trinomial:** 3 terms
- **Polynomial:** Any number of terms (1 or more)
- Degree of an expression is the highest power of the variable.