Algebraic Expressions and Identities Ex 6.1 Q1

Answer :

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 $-9, -ab,\ bc \text{ and } -ca$. 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., $0.2x,\ -0.3xy \text{ and } 0.5y$. 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.

Algebraic Expressions and Identities Ex 6.1 Q2

Answer :

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., $x,\ x^2,\ x^3 \text{ and } x^4$. 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 5*b*. Therefore, it is a trinomial.
(v) The polynomial $2b - 3b^2$ has exactly two terms, i.e., 2*b* and $-3b^2$. Therefore, it is a binomial.
(vi) The polynomial $2y - 3y^2 + 4y^3$ has exactly three terms, i.e., 2*y*, $-3y^2$ and $4y^3$. Therefore, it is a trinomial.
(vii) The polynomial $5x - 4y + 3x$ has exactly three terms, i.e., 5*x*, −4*y* and 3*x*. Therefore, it is a trinomial.
(viii) The polynomial $4a - 15a^2$ has exactly two terms, i.e., 4*a* 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.
(xi) The polynomial $2p + 2q$ has two terms, i.e., 2*p* and 2*q*. Therefore, it is a binomial.

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