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Chapter 8 - Algebraic Expressions and Identities

Algebraic expression is the expression having constants and variable. It can have multiple variable and multiple power of the variable

Example

$11x$
$2y - 3$
$2x + y$

Some Important points on Algebraic expressions

Terms	Description
Terms	Terms are added to form expressions
Factors	Terms themselves can be formed as the product of factors
Coefficient	The numerical factor of a term is called its numerical coefficient or simply coefficient
Monomial	Algebraic expression having one terms is called monomials Example 3x
Binomial	Algebraic expression having two terms is called Binomial Example 3x+y
Trinomial	Algebraic expression having three terms is called Trinomial Example 3x+y+z

Polynomial	An expression containing, one or more terms with non-zero coefficient (with variables having non negative exponents) is called a polynomial
Like Terms	When the variable part of the terms is same, they are called like terms
Unlike Terms	When the variable part of the terms is not same, they are called unlike terms

Operation on Algebraic Expressions

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1	Addition	1) We write each expression to be added in a separate row. While doing so we write like terms one below the other Or We add the expression together on the same line and arrange the like term together
		2) Add the like terms 3) Write the Final algebraic expression
2	Subtraction	1) We write each expression to be subtracted in a separate row. While doing so we write like terms one below the other and then we change the sign of the expression which is to be subtracted i.e. + becomes – and – becomes + Or We subtract the expression together on the same line, change the sign of all the term which is to be subtracted and then arrange the like term together 2) Add the like terms 3) Write the Final algebraic expression

3	Multiplication	1) We have to use distributive law and distribute each term of the first polynomial to every term of the second polynomial.
		2) when you multiply two terms together you must multiply the coefficient (numbers) and add the exponents
		3) Also as we already know ++ equals =, +- or -+ equals - and -- equals +
		4) group like terms

What is an Identity

An identity is an equality, which is true for all values of the variables in the equality.

$(a + b)^2 = a^2 + 2ab + b^2$
$(a - b)^2 = a^2 - 2ab + b^2$
$(a + b)(a - b) = a^2 - b^2$
$(x + a)(x + b) = x^2 + (a + b)x + ab$