General Method of Finding out the Constants.

(1) Express the given fraction into its partial fractions in accordance with the rules written above.

(2) Then multiply both sides by the denominator of the given fraction and you will get an identity which will hold for all values of x.

(3) Equate the coefficients of like powers of x in the resulting identity and solve the equations so obtained simultaneously to find the various constant is short method. Sometimes, we substitute particular values of the variable x in the identity obtained after clearing of fractions to find some or all the constants. For non-repeated linear factors, the values of x used as those for which the denominator of the corresponding partial fractions become zero.

Note: If the given fraction is improper, then before finding partial fractions, the given fraction must be expressed as sum of a polynomial and a proper fraction by division.

Important Tips

☞   Sometimes a suitable substitution transforms the given function to a rational fraction which can be integrated by breaking it into partial fractions.