# CLASS 8 MATHEMATICS HANDOUT 04

# TOPIC : IDENTITIES AND ITS APPLICATIONS

Identity: Identity is such an equality, true for every value of the variable in it.

There are three identity in this chapter , these identities are obtained by multiplying a binomial by another binomial. By using identities we make calculations easy.

(a+b)2= a2+2ab+b2

1. (a+b)2 = (a+b) X (a+b)

= a X (a+b) + b X (a+b)

= a²+ab+ba+b²

= a2+2ab+b2

1. (a-b) ² = (a-b) X (a-b)

(a-b)2= a2-2ab+b2

= a X (a-b) – b(a-b)

= a²-ab-ba+b²

= a²-2ab+b²

1. (a+b) X (a-b) = a X (a-b) + b X ( a-b)

(a+b) X (a-b) = a²-b²

= a²-ab + ba + b²

= a²-b²

Applications of identities: Many problems on multiplication of binomial expression and also of numbers can be solved by using identities.

Example: 1. (2x+3y) ²= (2x) ²+ 2X(2x)X(3y)+(3y)2

= 4x² + 8xy + 9y²

2. (9p-4q) ²= (9p) ²+ 2X(9p)X(-4q) + (-4q) ²

= 81p²-72pq+ 16²