

Time complexity chart

Algorithm	Time complexity
Polynomial Addition	$O(n_1+n_2)$ where n_1 =no. of terms in p_1 n_2 = no. of terms in n_2
Polynomial multiplication	$O(n_1*n_2)$ where n_1 =no. of terms in p_1 n_2 = no. of terms in n_2 if same terms then $O(n^2)$
Sparse Matrix addition	$O(n)$ In Addition, the matrix is traversed linearly, hence it has the time complexity of $O(n)$ where n is the number of non-zero elements in the largest matrix amongst two.
Simple Transpose	$O(n*t)$ where n =no. of Column t = no. of non-zero terms
Fast Transpose	$O(n+t)$ where n =no. of Column t = no. of non-zero terms

(Note :-Sparse matrix multiplication not in syllabus and recurrence relation)