ALGORITHM AND GRAPH FOR QUICK SORT:

```java
class QuickSort
{
        /* This function takes last element as pivot,
        places the pivot element at its correct
        position in sorted array, and places all
        smaller (smaller than pivot) to left of
        pivot and all greater elements to right
        of pivot */
        int partition(int arr[], int low, int high)
        {
                int pivot = arr[high];
                int i = (low-1); // index of smaller element
                for (int j=low; j<high; j++)
                {
                        // If current element is smaller than or
                        // equal to pivot
                        if (arr[j] <= pivot)
                        {
                                i++;

                                // swap arr[i] and arr[j]
                                int temp = arr[i];
                                arr[i] = arr[j];
                                arr[j] = temp;
                        }
                }

                // swap arr[i+1] and arr[high] (or pivot)
                int temp = arr[i+1];
                arr[i+1] = arr[high];
                arr[high] = temp;

                return i+1;
        }


        /* The main function that implements QuickSort()
        arr[] --> Array to be sorted,
        low --> Starting index,
        high --> Ending index */
        void sort(int arr[], int low, int high)
        {
                if (low < high)
                {
                        /* pi is partitioning index, arr[pi] is
                        now at right place */
                        int pi = partition(arr, low, high);

                        // Recursively sort elements before
                        // partition and after partition
                        sort(arr, low, pi-1);
                        sort(arr, pi+1, high);
                }
        }

        /* A utility function to print array of size n */
```

```java
static void printArray(int arr[])
{
        int n = arr.length;
        for (int i=0; i<n; ++i)
                System.out.print(arr[i]+" ");
        System.out.println();
}

// Driver program
public static void main(String args[])
{
        int arr[] = {10, 7, 8, 9, 1, 5};
        int n = arr.length;

        QuickSort ob = new QuickSort();
        ob.sort(arr, 0, n-1);

        System.out.println("sorted array");
        printArray(arr);
}
}
```

quicksort

Quick Sort