Quick sort applies divide & conquer paradigm.

Algorithm 1: QUICKSORT ALGORITHM:

```
QUICKSORT(A,p,r)
if p ¡ r then
   q= PARTITION(A,p,r)
   QUICKSORT(A,p,q-1)
   QUICKSORT(A,q+1,r)
end if
```

Algorithm 2: Partition algorithm:

```
PARTITION(A,p,r)
x=A[r]
i=p-1
for j=p to r-1 do
   if A[r] ≤ x then
      i=i+1
   end if
   exchange A[i] with A[j]
end for
exchange A[i+1] with A[r]
return i+1
```

pen & paper description of quick sort

5	2	4	6	1	3

Table 1:

step	value	true/false	after operation array will be	discussion
1.QUICKSORT(A,1,6)				function call
if $1 < 6$	true			
q=PARTITION(A,1,6)				