Mergesort a[0], ..., a[n-1]

1. Divide - split array in half

input (problem) sort a[p] ... a[r]

subproblem $q = \lfloor (p+r)/2 \rfloor$

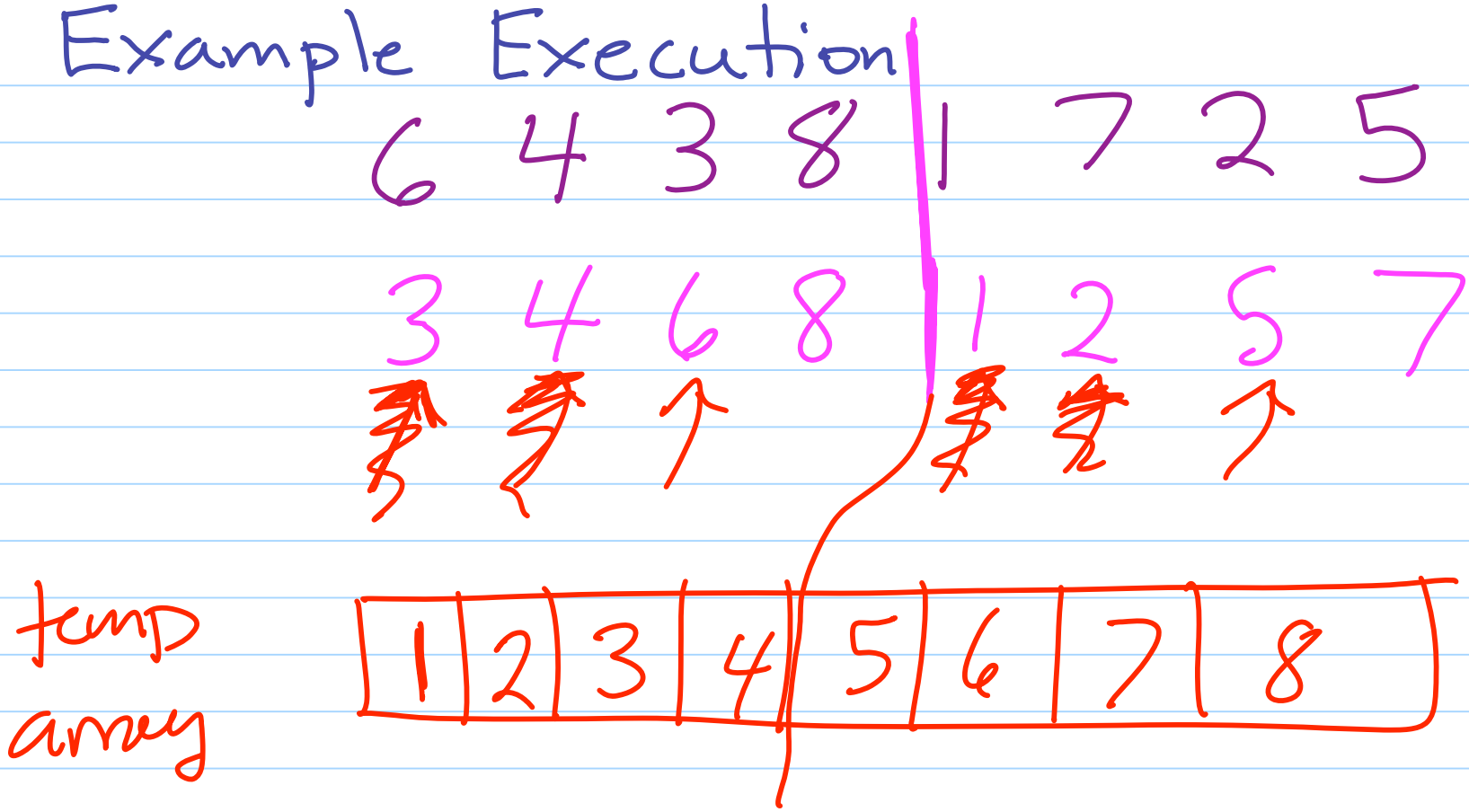
sort a[p] ... a[q] + a[q+1] ... a[r]

stop n=1

2. Recursively sort two subarrays

3. Merge two sorted subarrays

Example Execution



This takes linear time (in size of resulting subarray)