






Q 1:  $A = (28, 30, 63, 17, 30, 41)$

$(28, 30, 63, 17, 30, 41)$   


$(28, 30, 63, 17, 30, 41)$   


$(28, 30, 63, 17, 30, 41)$   


$(17, 28, 30, 63, 30, 41)$   


$(17, 28, 30, 30, 63, 41)$   


$(17, 28, 30, 30, 41, 63)$

Q 2:

2.1 WIS compares keys from left to right while RIS compares right to left. The rightmost element is already sorted making it the loop invariant in WIS.

2.2 RIS is sorted left to right making the first element

making the first element trivially sorted, and loop invariant sequence after is 1 to  $j-1$ .  
WIS is reversed so the last element is the first sorted, then after last element to  $j+1$ .

2.3 Its sorting loop is the same efficiency, but WIS has to traverse  $n-1$  times initially to start comparing.

2.4

WIS(A)

for  $j = A.length - 1$  to 1

    key =  $A[j]$

$i = j + 1$

    while  $i < A.length$  and  $A[i] < key$

$A[i+1] = A[i]$

$i = i + 1$

$$A[i-1] = \text{key}$$

2.5 WIS does not improve RIS and adds a small inefficiency by traversing  $n-1$  indexes initially.

