Rewrite the MERGE procedure so that it does not use sentinels, instead stopping once either array $L$ or $R$ has had all its elements copied back to $A$ and then copying the remainder of the other array back into $A$.

**Solution**.

MERGE$(A, p, q, r)$

```
 1   n₁ = q − p + 1
 2   n₂ = r − q
 3   let L[1 . . n₁] and R[1 . . n₂] be new arrays
 4   for i = 1 to n₁
 5        L[i] = A[p + i − 1]
 6   for j = 1 to n₂
 7        R[j] = A[q + j]
 8   i = 1
 9   j = 1
10   for k = p to r
11        if j > n₂ or (i ≤ n₁ and L[i] ≤ R[j])
12             A[k] = L[i]
13             i = i + 1
14        else A[k] = R[j]
15             j = j + 1
```