Week 8 Quiz

Q1.

Consider the following list:

```
[44, 90, 12, 18, 7, 22, 30]
```

Say that we choose a pivot to be the middle element (18). What would the list look like after partitioning around that element, such as in the first step of quicksort? *Hint: two swaps should occur.*

A. `[7, 90, 12, 18, 44, 22, 30]`

B. `[7, 18, 12, 90, 44, 22, 30]`

C. `[7, 12, 18, 22, 30, 44, 90]`

D. `[7, 12, 18, 90, 44, 22, 30]`

Q2.

Which of the following situations would **not** lead to worst-case performance for quicksort?

A. Choosing pivot to be the first element of the list, on a list that's already sorted

B. Choosing pivot to be the last element of the list, on a list that's already sorted

C. Choosing the pivot randomly, which happens to choose the greatest element each time the partition procedure is called

D. Choosing pivot to be the middle element of the list, on a list that's already sorted

Q3.

Which of the following string matching algorithms uses a preprocessing step to build a table that improves matching efficiency?

A. Naive string matching algorithm

B. Knuth-Morris-Pratt (KMP) algorithm

C. Rabin-Karp algorithm

D. All of these