Quicksort:

1. Using the first number in each (sub)array as a pivot, quicksort the following array:

   \[ A = \{6, 3, 5, 2, 7, 1, 9\} \]

2. Pretend we have a function called \texttt{partition(A, low, hi)} that returns the index where the pivot should go in the subarray from \texttt{A[low:hi]}. The pivot should begin at \texttt{A[low]}. Write the function:

   \[
   \begin{align*}
   \text{\underline{\text{quicksort}}(A, \text{low, hi})} & \{
   \}
   \end{align*}
   \]

3. Now write the function our helper function. What should the return type be?

   \[
   \begin{align*}
   \text{\underline{\text{partition}}(A, \text{low, hi})} & \{
   \}
   \end{align*}
   \]

4. What is the runtime of quicksort?