Sorting

Quick Sort

- divide and conquer algorithm
- recursive
- process:
  - choose pivot (often leftmost or rightmost element)
  - place:
    - everything less than pivot to it's left
    - everything greater than pivot to it's right
    - pivot in between
  - repeat process for left chunk and right chunk (use quicksort to sort each chunk)

Quick Sort

- How to move elements to correct side of pivot?
- Start scanning from both sides
  - Scan from left -> until find entry > pivot
  - Scan from <- right until find entry < pivot
  - Swap entries
- Stop once scan indices cross and swap pivot element into place
  - leftmost pivot, swap pivot with rightmost in left subarray
  - rightmost pivot, swap pivot with leftmost in right subarray

Quick Sort - Complexity

- Recursive halving of problems - how many levels?
- How much work at each level