1. (1 pt.)
   - This *quick check* is **closed book, notes, etc.**
   - You may use a *hand-written* 3 in. × 5 in. **reference card** as announced.
   - Use the **classroom and textbook conventions** and terminology.

   Read the above carefully; then write your name below:

2. (8 pts.) For each of the following problems on a graph $G = (V, E)$, write (1) the name of the textbook's algorithm (from Ch. 14) for the problem and (2) the worst-case asymptotic (big-O) running times of that algorithm.

   (a) Unweighted shortest-path.

   (b) Weighted nonnegative-edges shortest-path.

   (c) Weighted shortest path (with negative-weight edges allowed).

   (d) Topological sort.

3. (1 pts.) In the leftmost-child/right-sibling representation (implementation) of a pairing heap, what is the purpose of a third link?