

Precept 3

These problems will be solved in precept.

1. Let $G = (V, E)$ be an undirected graph and let $0 < p_e < 1$ be the probability that edge $e \in E$ fails. Find a path between s and each other node that minimizes the probability that some edge in the path will fail.

Assume that edge failures are independent events.

- (a) Reduce the problem to the single-source shortest paths problem in digraphs with non-negative edge lengths.
 - (b) Solve the problem directly.
2. EXERCISE 4.10 in *Algorithm Design* (add edge to MST).