

Problem set number 9

CS470 Spring 2005

due date April 24, 2005, 11:59pm

Exercise 9.1 [worth 10 points]

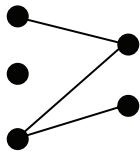
Solve 22.2-3 from page 539 of CLRS; give an asymptotically tight bound on the worst case running time.

Exercise 9.2 [worth 10 points]

Solve 22.3-8 from page 548 of CLRS.

Exercise 9.3 [worth 30 points]

An undirected graph is called bipartite if its vertices V can be partitioned into disjoint sets L and R such that their union is V , and that for any edge, one of its endpoints belongs to L while the other belongs to R i.e., there are no edges between vertices from L , nor there are edges between vertices from R . Example:



where L contains the left three vertices, and R the right two. Design an algorithm that determines whether a given undirected graph is bipartite.