

CISC320 Algorithms, Homework set 1
Due Wednesday, March 2 2011.

1. Find a counterexample consisting of 4 points in the plane to the proposition that the closest pair algorithm (pg 6) produces a solution to the robot tour optimization problem (pg 5). Explain how the algorithm fails on your counterexample.
2. Exercise 1-6.
Example of what the question is talking about: Let S_p be the set of people who are friends with person p . Find the smallest number k of people, p_1, p_2, \dots, p_k , such that everyone in the world is a friend of at least one of them.
3. Exercise 1-11.
Remind me to do the similar problem 1-12 in class
4. Exercise 1-18.
This is the rather surprising identity that the square of the sum of the first n positive integers is the sum of their cubes. You can establish this identity directly by induction or you can do exercise 1.10 using induction and follow up by using 1-10 and 1-12 to establish this identity. The second approach may be simpler.
5. 2-1.
Remind me to do the similar problem 2-2 in class
6. 2-7. Explain your reasoning.
7. 2-11.
8. A Programming exercise concerning sorting. Details to follow.