# Algorithms: Bonus 10

**Due date: December 14 (Thursday)**

*This problem is optional; if you solve it, you will get 4 bonus points toward your final grade for the course. You should submit your solution before the final exam.*

Imagine that some researcher has proved that P=NP, and we have all reasons to trust her, although we have not seen the proof. Then, we know that every NP problem has a polynomial-time solution; in particular, there is a polynomial algorithm that solves the Hamiltonian-Cycle problem.

Surprisingly, this knowledge enables us to implement an actual program that finds hamiltonian cycles in polynomial time. Your task is to describe an algorithm that underlies such a program. If the P=NP result is correct, your algorithm must always run in polynomial time. On the other hand, if P≠NP, the algorithm may take exponential time.