Problems: Intractability

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1. Give an example of a problem which is NP-hard but unlikely to be NP-complete.

2. Show that CNF-SAT many-to-one reduces to 3SAT.

3. Show that 3SAT many-to-one reduces to Vertex Cover.

4. Show that Directed Hamiltonian Cycle many-to-one reduces to Directed Hamiltonian Path.

5. Show that Vertex Cover many-to-one reduces to Subset Sum.

6. Show that Subset Sum many-to-one reduces to Partition.

7. Show that Vertex Cover many-to-one reduces to Hitting Set.

8. Show that CNF-SAT many-to-one reduces to 3SAT.

9. Show that 3 Dimensional Matching many-to-one reduces to Set Cover.

10. Show that Clique many-to-one reduces to Vertex Cover.

11. Prove that the Traveling Salesman problem is NP-complete.