NP-hard problems and NP-complete problems are the subsets of NP problems.

○ T ◉ F

答案正确：1 分 创建提问

The decision problem HALTING returns TRUE, if, for a given input I and a given (deterministic) algorithm A, A terminates, otherwise it loops forever. The HALTING problem is NP-complete.

F

If P = NP then the Shortest-Path (finding the shortest path between a pair of given vertices in a given graph) problem is NP-complete.

T

All NP problems are decidable.

T

To prove problem B is NP-complete, we can use a NP-complete problem A and use a polynomial-time reduction algorithm to transform an instance of problem B to an instance of problem A.

F

Given that problem A is NP-complete. If problem B is in NP and can be polynomially reduced to problem A, then problem B is NP-complete.

○ T ◉ F

答案正确：1 分 创建提问

反了，必须让已知的NPC规约到我们想要知道的这个问题

A language L belongs to NP iff there exist a two-input polynomial-time algorithm A that verifies language L in polynomial time.

T

Which one of the following statements is TRUE about the NP class?

○ A. $P \subseteq NP \subseteq NP$-Complete $\subseteq NP$-hard

◉ B. $P \subseteq NP$ and NP-Complete $= NP \cap NP$-hard

○ C. $P \subseteq NP$-Complete $\subseteq NP$-hard $\subseteq NP$

○ D. $P \subseteq NP$ and $NP = NP$-Complete $\cap NP$-hard

答案正确：1 分 创建提问

About Vertex Cover problem, which of the following statements is FALSE?

- A. The time complexity of its verification algorithm is $O(N^3)$, where N refers to the number of nodes.
- B. It is an NP problem.
- C. It is an NP-complete problem.
- D. It is polynomial-time reducible to Clique problem, but not vice versa.

答案正确：1 分 创建提问

Let X be a problem that belongs to the class NP. Then which one of the following is **TRUE**?

- A. If X is NP-hard, then it is NP-complete.
- B. X may be undecidable.
- C. There is no polynomial time algorithm for X.
- D. If X can be solved deterministically in polynomial time, then P = NP.

A