EXERCISE 1.4 Anders and Michael were classmates in college. In their spare time while undergraduates, they developed a software product that regulates traffic on internet sites. Their product uses very imaginative and original ideas, and they have applied for a patent. They estimate that there is an 80% chance their patent will be approved by the US Patent Office.

Anders and Michael have also formed a start-up company called ITNET, and they have started to market their software product. Last month, they presented some of their ideas tof Singular, Inc., the dominant player in this growing market, after Singular had signed a confidentiality agreement with ITNET that ITNET's lawyer had prepared.

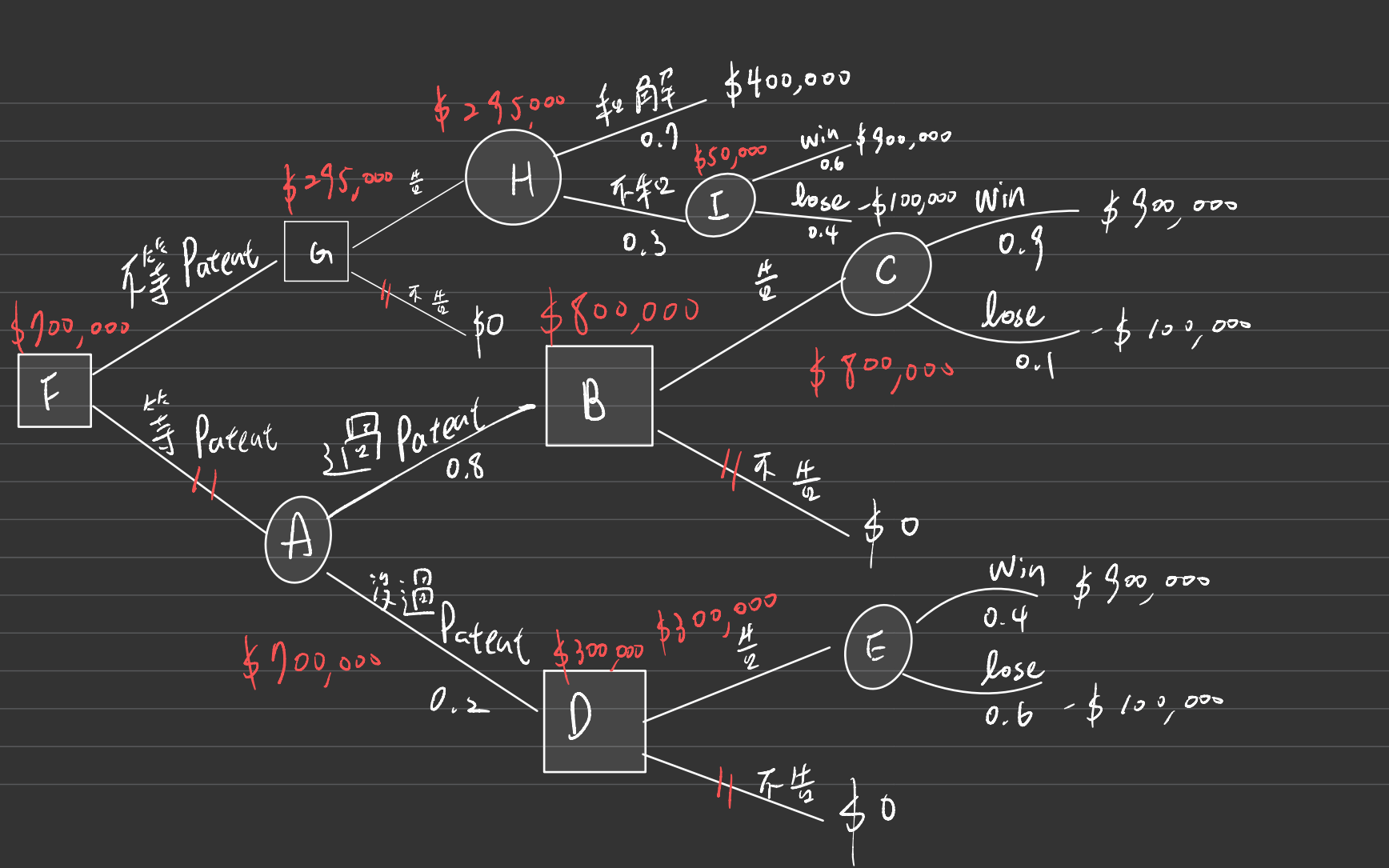
Yesterday, Singular announced a new software product that seemed suspiciously similar to the one that Anders and Michael have developed. Anders' first reaction was to plan to sue Singular immediately. However, Michael felt that they should wait until they have received notification of their patent, which is still pending before the U.S. Patent Office. Michael reasoned that their case would be much stronger if they had a patent for their product.

Suppose that Anders and Michael have a 90% chance of winning a lawsuit against Singular if their patent application is approved, and that they still have a 60% chance of winning such a lawsuit even while their patent application is pending (because Singular had signed the confidentiality agreement). However, if their patent application is not approved, suppose that the chance of winning the lawsuit would drop to 40%.

Anders feels that if they sue Singular immediately, there is a 70% chance that Singular would settle out of court for $400,000, and a 30% chance that Singular would not settle out of court. If they win the lawsuit, their settlement would be $1 million. However, they estimate that the legal costs of going to court would be $100,000.

(a) Structure ITNET's problem of whether or not to sue Singular as a decision tree.

(b) Solve for the optimal decision strategy.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