

PROJECT

If you do this project AND end up with an F or D in the course then I will grade it and MAY use your grade to BUMP your grade up one notch. Throughout this document “prove” means “give a construction and discuss why it works.” What you hand in must be TYPED or VERY GOOD HAND-WRITING.

DUE the DAY of the final. Absolute Deadline.

HINT: START early. Feel free to get help from me or the TA.

1. (0 points but you have to answer) What is your name? Write it clearly.
2. Let L , L_1 and L_2 be regular. Prove or Disprove or state that it is unknown to science. (You may use the equivalence of DFA,'s NFA's, and Regular Expressions).
 - (a) \bar{L} is regular.
 - (b) L_1L_2 is regular.
3. Let L be in P. Prove or Disprove or state that it is unknown to science.
 - (a) \bar{L} is in P.
 - (b) L^* is in P.
4. Let L , L_1 and L_2 be in NP. Prove or Disprove or state that it is unknown to science.
 - (a) \bar{L} is in NP.
 - (b) L_1L_2 is in NP.
5. Let L , L_1 and L_2 be decidable. Prove or Disprove or state that it is unknown to science.
 - (a) \bar{L} is decidable.
 - (b) L_1L_2 is is decidable.
6. Let L , L_1 and L_2 be in c.e. Prove or Disprove or state that it is unknown to science.
 - (a) \bar{L} is c.e.
 - (b) L_1L_2 is c.e..