

Prob. 1	Prob. 2	Prob. 3

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Problem 1.

- 1) First let's convert the DFA to an NDA A' , which is A with all state transitions reversed.
- 2) Convert A' to a DFA A'' (using techniques we saw in class)
- 3) Compare A and A'' (using the technique we saw in class, section 2.3 of lecture notes 5)
- 4) If they accept the same entries, accept, else reject.

Problem 2.

Let's take the Turing-Machine recognizing C . And modify it to stop after x , not reading the rest of the input. As the language can recognize and decide C , it can decide a subset of it, as there is no loop. Therefore R is Turing-Recognizable

Problem 3.

Let C be x,y where x is anything, y is empty, and the separator is encoded as the empty string. Then all x in R have an y such that x,y is in C .