Math 387 Friday class summary Week 4

Some things covered in today's class discussion:

- 1. Nathan demonstrated that there is an NFA with n + 1 states for which an equivalent DFA requires 2^n states. (This was a bonus problem.)
- 2. Quick discussion of the Church-Turing thesis.
- 3. General questions from the class.
- 4. Is every language Turing recognizable?
- 5. Discuss the hierarchy of languages and machines we have seen so far in order of increasing strength.
 - (a) Give examples showing each successive class of languages in the hierarchy is larger than the previous.
 - (b) Discuss the closure properties for each model. For instance, consider checking the boxes in the following table if the listed language is closed under the given property. Try to fill in this table row-wise, starting with the top row.

	R	CF	TD	TR
union	\checkmark			
concatenation				
star				
intersection				
complementation				
reversal				
rotational closure				

R = regular, CF = context-free, TD = Turing-decidable, TM = Turing recognizable