Warmup 2: Regular Languages

1. Consider the following FA.
   ![Diagram of a FA]

   (a) Give two strings of length 4 accepted by the FA.
   (b) Give two strings of length 4 NOT accepted by the FA.
   (c) Describe in succinct-ish English the language of this FA. Be precise.

2. Use the class algorithm to produce an NFA for the following RE. \((a + bc)^*\)

3. For each language, give 3 strings that are pairwise distinguishable with respect to that language:

   (a) The set of all binary strings whose first and last bit are the same
   
   e.g. 11, 10, 01 \([\text{first & last bits matter}]\)

   (b) The set of all binary strings that contain 101 as substring
   
   e.g. 1, 10 \([\text{progress on containing 101}]\)

   (c) The set of all binary strings of odd length.
   
   does not exist: can only do 2 distinguishable