3. Base Case: x = ϵ then xy = ϵy = y by the identity property. Since y $\in$ A it is regular

   inductive step: x = ax'

   Assume that x' $\circ$ A is regular

   want to prove that ax' $\circ$ A is regular

   Since x'y is a regular expression meaning there is an NFA that accepts x'y and only x'y We can add a stage(s) to the front of the preexisting NFA to accept a and only a. We know that this is possible since a $\in \sum$

   To do this we add a stage that would accept the a and only a. Iff a is accepted, let it lead into q_0 of the NFA for x'A.

   This will work because we can make a machine that will accept a and only a and then connect that machine to our preexisting machine. If a is not accepted there is no where for it to go therefore it will die resulting in a reject.

   Since x = ax' and we have proven to be able to concatinate x with y where y is any string in A we know x $\circ$ A is regular