1. Show the following CFG generates the language defined by the RE $a^*bb$
   \[ S \rightarrow aS | bb \]

2. Find a CFG for each of the following:
   (a) All words in which the letter $b$ is never tripled
   (b) All words that have different first and last letters
   (c) All words that don’t have the substring $ab$

3. Describe the language generated by the following CFG:
   \[ S \rightarrow SS \]
   \[ S \rightarrow XXX \]
   \[ X \rightarrow aX | Xa | b \]

4. Write a CFG to generate the language MOREA. By definition MOREA contains all strings that have more $a$’s than $b$’s

5. Show the following CFGs are ambiguous
   (a) \[ S \rightarrow XaX \]
      \[ X \rightarrow aX | bX | \Lambda \]
   (b) \[ S \rightarrow aSX | \Lambda \]
      \[ X \rightarrow aX | a \]

6. For the CFGs in the previous question, provide a non-ambiguous CFG