

Question 3

Write a recursive grammar for the language of strings of one or more letters. The first letter of each string must be uppercase, and all the other letters in the string must be lowercase.

$\langle S \rangle = \langle U \rangle \mid \langle U \rangle \langle L \rangle$
 $\langle U \rangle = A \mid B \mid \dots \mid Z$
 $\langle L \rangle = a \mid b \mid \dots \mid z \mid a \langle L \rangle \mid b \langle L \rangle \mid \dots \mid z \langle L \rangle$

Question 5a

Consider a language of strings that contains Xs and Ys and Zs. A string in this language must begin with an X. If a Y is present in a string, it must be the final char of the string. Write a recursive grammar for this language.

a. $\langle S \rangle = X \mid \langle W \rangle \mid \langle W \rangle$
 $\langle W \rangle = ZY \mid Z \langle W \rangle$

Question 5b

XX
XZ
XY

Question 6a

Consider a language of words, where each word is a string of dots and dashes.

The grammar describes this language:

$\langle \text{word} \rangle = \langle \text{dot} \rangle \mid \langle \text{dash} \rangle \langle \text{word} \rangle \mid \langle \text{word} \rangle \langle \text{dot} \rangle$
Write all three character strings in this language

a. $\langle \text{dash} \rangle \langle \text{dot} \rangle \langle \text{dot} \rangle$
 $\langle \text{dash} \rangle \langle \text{dash} \rangle \langle \text{dot} \rangle$
 $\langle \text{dot} \rangle \langle \text{dot} \rangle \langle \text{dot} \rangle$

Question 6b

b. Is the string $\langle \text{dot} \rangle \langle \text{dot} \rangle \langle \text{dot} \rangle \langle \text{dot} \rangle \langle \text{dash} \rangle \langle \text{dash} \rangle$ in this language?
b. No. Dash cannot be at the end of a word.

Question 10 -> Yes. The prefix expression is legit

Give me some Clojure:

```
> (+(* 1(- 2(/ 3 (+ (+ 4 5)(- 6 7 ))))))  
13/8  
> (+(*a(-b(/ c (+(+de)(-fg)))))
```