Lista 2 - FTC

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Questão *1.*

$\sum$ = a,b e Pb = b,b

1. **Base:** $\lambda \in$ PB

2. **Passo Recursivo:** W $\in$ PB e $\alpha \sum$ então *WA, AW, BBW, BWB, WBB $\in$ PB

3. **Fechamento:** R é um conjunto de Strings sobre o alfabeto $\sum$ se, e somente se, puder ser atingido a partir de um número finito de execuções dos passos 1 e 2.

Questão *2.*

a)

$$(ba)^* \times (ba) \times (a^* \times b^* \cup a^* \times \lambda)$$
$$(ba)^* \times (ba) \times a^* \times (b^* \cup \lambda)$$
$$(ba)^* \times b \times a \times a^* \times (b^* \cup \lambda)$$
$$(ba)^* \times b \times (a^+) \times (b^* \cup \lambda)$$
$$(ba)^* \times b \times a^+ \times (b^* \cup \lambda)$$

b)

$$b^+ \times (a^* \times b^*) \times b$$
$$b^* \times b \times (a^* \times b) \times b^* \times b$$
$$b(b^* \times a^* \cup \lambda) \times b^+$$

Questão *3.*

a)
$$a \times a^+ \cup b^+ \times a^+ \times b^+$$

b)
$$(a \cup b)^* \times a \times a \times (a \cup b)^*$$

c)
$$(b^* \cup a \times b)^* \times a \times a \times (b^* \cup b \times a)^*$$

d)
$$a \times (a \cup c)^* \times b \times (a \cup c)^* \times b \times (a \cup c)^* \times c \times c$$

e)
$$((a \cup b)^* \times a \times b \times (a \cup b)^* \times b \times a \times (a \cup b)^* \cup (a \cup b)^* \times b \times a \times (a \cup b)^* \times a \times b \times (a \cup b)^*)) \cup$$
$$((a \cup b)^* \times a \times b \times a \times (a \cup b)^* \cup (a \cup b)^* \times b \times a \times b \times (a \cup b)^*)$$

f)
$$((a \cup b \cup c)^* \times a \times a \times (a \cup b \cup c)^* \times b \times b \times (a \cup b \cup c)^* \times c \times c) \cup$$
$$((a \cup b \cup c)^* \times a \times a \times (a \cup b \cup c)^* \times c \times c \times (a \cup b \cup c)^* \times b \times b) \cup$$
$$((a \cup b \cup c)^* \times b \times b \times (a \cup b \cup c)^* \times a \times a \times (a \cup b \cup c)^* \times c \times c) \cup$$
$$((a \cup b \cup c)^* \times b \times b \times (a \cup b \cup c)^* \times c \times c \times (a \cup b \cup c)^* \times a \times a) \cup$$
$$((a \cup b \cup c)^* \times c \times c \times (a \cup b \cup c)^* \times b \times b \times (a \cup b \cup c)^* \times a \times a) \cup$$
$$((a \cup b \cup c)^* \times c \times c \times (a \cup b \cup c)^* \times a \times a \times (a \cup b \cup c)^* \times b \times b) \cup$$

g)
$$(a^* \cup b \times c \cup c^*)^*$$

h)
$$(a \cup b \cup c) \times (a \cup b \cup c) \times (a \cup b \cup c)$$

i)
$$(\lambda \cup a \cup b \cup c) \times (\lambda \cup a \cup b \cup c)$$

j)
$$(a \cup b \cup c)^* \times (a \cup b \cup c) \times (a \cup b \cup c) \times (a \cup b \cup c) \times (a \cup b \cup c)^* \times$$

k) Não existe