

Actividad 3.1 - Practicando los Lenguajes Regulares

4. Let $X = \{aa, bb\}$ and $Y = \{\lambda, b, ab\}$.

- List the strings in the set XY .
- How many strings of length 6 are there in X^* ?
- List the strings in the set Y^* of length three or less.
- List the strings in the set X^*Y^* of length four or less.

a) $xy = \{aa, aa\lambda, aab, aaab, bb, bb\lambda, bbb, bbab, \lambda, b, ab\}$

b) 8 strings

$x^* = \{aaaaaa, aaaabb, aabbaa, aabbbb, bbaaaa, bbaabb, bbbbaa, bbbbbb\}$

c) $y^* = \{\lambda, b, ab, \lambda\lambda, bb, \lambda b, b\lambda, \lambda bb, b\lambda b, bb\lambda, \lambda ab, ab\lambda, bab, abb, bbb, \lambda\lambda\lambda\}$

d) $x^* = \{aa, bb, aaaa, bbbb, aabb, bbaa\}$

$y^* = \{\lambda, b, ab, \lambda\lambda, bb, \lambda b, b\lambda, \lambda bb, b\lambda b, bb\lambda, \lambda ab, ab\lambda, bab, abb, bbb, \lambda\lambda\lambda, \lambda\lambda\lambda\lambda, bbbb, abab, \lambda bbb, \lambda bbb\lambda, \lambda b\lambda b, \lambda b\lambda\lambda, \lambda\lambda bb, \lambda\lambda b\lambda, \lambda\lambda\lambda b, bbab, babb, abbb, \lambda\lambda ab, \lambda ab\lambda, ab\lambda\lambda, bbb\lambda, bb\lambda b, bb\lambda\lambda, b\lambda bb, b\lambda b\lambda, b\lambda\lambda b, b\lambda\lambda\lambda\}$

$x^*y^* = \{\lambda aa, aa\lambda, aab, baa, aa\lambda\lambda, \lambda\lambda aa\}$

For Exercises 14 through 38, give a regular expression that represents the described set.

- The set of strings over $\{a, b, c\}$ in which all the a 's precede the b 's, which in turn precede the c 's. It is possible that there are no a 's, b 's, or c 's.
- The same set as Exercise 14 without the null string.
- The set of strings over $\{a, b, c\}$ with length three.
- The set of strings over $\{a, b, c\}$ with length less than three.
- The set of strings over $\{a, b, c\}$ with length greater than three.
- The set of strings over $\{a, b\}$ that contain the substring ab and have length greater than two.

14. Respuesta = $(a*b*c^*)$

15. Respuesta = $(aa*b*c^*)+(a*bb*c^*)+(a*b*cc^*)$

16. Respuesta = $(a+b+c)(a+b+c)(a+b+c)$

17. Respuesta = $(a+b+c)(a+b+c) + (a+b+c)$

18. Respuesta = $(a+b+c)(a+b+c)(a+b+c)(a+b+c)(a+b+c)^*$

19. Respuesta = $((a+b)^*(a+b)ab(a+b)^*) + ((a+b)^*ab(a+b)(a+b)^*)$

NOTA: No se ven los lambda al subir el archivo a github. Para ver el archivo correcto ver el PDF