

1. When $B = \{\mathbf{A}, \mathbf{C}, \mathbf{U}, \mathbf{G}\}$ is the set of RNA bases, consider the recursively defined set X given by:

Basis Step: $\mathbf{AA} \in X, \mathbf{CC} \in X, \mathbf{UU} \in X, \mathbf{GG} \in X$

Recursive Step: If $x \in X$ and $b \in B$ then $bx b \in X$

where $bx b$ is the result of string concatenations.

Give three example elements of X and an English description of the set.

2. Write in roster method the set given by the Cartesian product

$$\{1, 2\} \times \{a, b, c\}$$