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1st Group Problems

B. Basis 1: $W = 3$ aaa ✓   Given: $|w| \geq 3$

    Basis 2: $W = 3$ aab ✓   W contains more a's than b's

    Basis 3: $W = 3$ aba ✓

    Basis 4: $W = 3$ baa ✓

Inductive step: Assume $|w| \leq n$ is True, show $|w| \leq n+1$ is True

       $3 \leq |w| \leq n \rightarrow 3 \leq n$

   Case 1. $|W| = n+1$, W starts with an a

       thus the word minus the first symbol has length $|w| - 1 = n$

       by inductive assumption, $|w| - 1 = n$ is True

       therefore $|w| = n+1$ is also True since adding the a back

       in would not remove the subword ✓

   Case 2: $|w| = n+1$, W starts with an b

       thus the word minus the first symbol has length $|w| - 1 = n$

       by inductive assumption, $|w| - 1 = n$ is True

       therefore $|w| = n+1$ is also True since adding the b

       back in would not remove the subword ✓

A. 1. $\Sigma = (1, 2, 3, 4, 5, 6, 7, 8, \{, \}, , , (,))$

   2. $w = (\{1, 2, 3, 4, 5, 6, 7, 8\}, \{(1,3), (1,4), (1,5), (1,6), (2,3), (2,4), (2,6), (2,8), (3,5), (3,6),$
$(4,5), (4,7), (5,6), (7,8)\})$

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A.

1. $(1, 2, 3, 4, 5, 6, 7, 8, \{, \}, ,, \langle, \rangle)$

2. $W = (\{1, 2, 3, 4, 5, 6, 7, 8\}, \{(1,3), (1,4), (1,5), (1,6),$
$(2,3), (2,4), (2,6), (2,8)$
$(3,5), (3,6), (4,5), (4,7),$
$(5,6), (7,8)\}$