7. Let \( n > 3 \) and \( A = \{1, 2, 3, \ldots, n\} \).

(b) How many subsets \( B \) of \( A \) have the property that \( B \cap \{1, 2\} = \emptyset \)?

Set.

\[ B \cap \{1, 2\} = \emptyset \iff B \subseteq \{3, \ldots, n\} \]

Since \( \{3, \ldots, n\} \) has \( n-2 \) elements, it has \( 2^{n-2} \) subsets. Ans. \( 2^{n-2} \)

25. (d) If \( A = \emptyset \), then \( \emptyset \times B = \emptyset \times C = \emptyset \) for any sets \( B, C \). So \( A \times B = A \times C \iff B = C \).

For example, \( B = \{1, 3\}, C = \{3, 4\}, A = \emptyset \), then

\[ A \times B = A \times C = \emptyset \]

but \( B \neq C \).