

The **empty set** is a subset of every set.

- For any set B , $\emptyset \subseteq B$.
- For any set B other than the empty set, $\emptyset \subset B$.

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Example 3: Let $A = \{ \}$ and $B = \{6, 7, 8\}$. Is $A \subseteq B$?

The number of distinct **subsets** of a set with n elements is 2^n .

The number of distinct **proper subsets** of a set with n elements is $2^n - 1$.

Example 4: Find the number of distinct subsets and the number of distinct proper subsets for each set:

a. $\{a, b, c, d\}$

b. $\{x \mid x \in \mathbb{Z} \text{ and } 3 \leq x \leq 8\}$