

Section 2.2

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Set A is a **subset** of set B, expressed as $A \subseteq B$, if every element in set A is also an element in set B.

- The notation $A \not\subseteq B$ means that set A is not a subset of set B, so there is at least one element of set A that is not an element of set B.

Example 1: Write \subseteq or $\not\subseteq$ in each blank to form a true statement:

a. $A = \{1, 3, 4, 6, 9, 11\}$
 $B = \{1, 3, 5, 7\}$

A _____ B

b. $A = \{x \mid x \text{ is a letter in the word } \textit{roof}\}$
 $B = \{y \mid y \text{ is a letter in the word } \textit{proof}\}$

A _____ B

c. $A = \{x \mid x \text{ is a day of the week}\}$
 $B = \{\text{Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday}\}$

A _____ B

Set A is a proper subset of set B, expressed as $A \subset B$, if A is a subset of B and $A \neq B$.

Example 2: Write \subseteq , \subset , or both in each blank to form a true statement.

a. $A = \{2, 4, 6, 8\}$
 $B = \{2, 8, 4, 6, 10\}$

A _____ B

b. $A = \{x \mid x \text{ is a person and } x \text{ lives in Atlanta}\}$
 $B = \{x \mid x \text{ is a person and } x \text{ lives in Georgia}\}$

A _____ B