

Reading Questions 4

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1. The expression " $x \in A$ " means that x is an element of A .
2. The set $\{x|x \in \mathbb{Z} \text{ and } x \geq 0\}$ contains all integers x such that x is greater than or equal to 0.
3. The set \mathbb{N} represents the set $\{0, 1, 2, \dots\}$.
4. Write out the elements of the set $\{a, b, \{a, b\}\}$.

Section 2.1 Sets (Part 1)

Sets Notation

P 1. Write down a set named A which contains two elements. Write down a set named B which contains three elements. Write down a set named C which contains the set A and contains elements from the set B .

P 2. How many elements does the set $\{1, \{\emptyset\}, \emptyset\}$ contain.

P 3. Write out the elements of the following sets.

1. $\{x|x^2 + 2x - 3 = 0\}$
2. $\{\{\}, 1, \{1, 2, 3\}\}$

P 4. List the elements of the set $\{1, \{a\}, a\} \setminus \{a\}$?

Subsets

P 5. Let $A = \{1, 2, 3, 4\}$. List all the subsets B of A such that $B \subseteq \{1, 2\}$.

Definition

The *power set* of the set A , denoted by $\mathcal{P}(A)$, is the set of all subsets of A .

P 6. Write the power set $\mathcal{P}(A)$ for the set $A = \{\{1, 2\}, 3, \{\}\}$.

P 7. How many elements are in the power set of a set containing exactly three elements?