

1. Give an example of a set A with $\mathbb{Q} \subset A \subset \mathbb{R}$.
2. Give an example of sets A and B with $A \subseteq B$ and $A \in B$.
3. If $A = \{1, 2, 3, 4, 5\}$ and $B = \{3, 4, 5, 6, 7\}$:
 - (a) Find $A \cap B$.
 - (b) Find $A \cup B$.
 - (c) Find an expression involving A , B and some of \cap , \cup , $-$ and complement to denote the elements in either A or B but not both.
4. Give examples of sets of integers A and B with $A \cap B = \{1, 2\}$ and $|\mathbb{Z} - (A \cup B)| = 1$.
5. Find $\mathcal{P}(A)$ for $A = \{1, 2, 3\}$.
6. Find $\mathcal{P}(A)$ for $A = \{0, \{0, 1\}\}$.