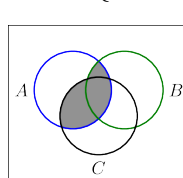


TABLE 1 Set Identities.	
<i>Identity</i>	<i>Name</i>
$A \cap U = A$ $A \cup \emptyset = A$	Identity laws
$A \cup U = U$ $A \cap \emptyset = \emptyset$	Domination laws
$A \cup A = A$ $A \cap A = A$	Idempotent laws
$\overline{(\overline{A})} = A$	Complementation law
$A \cup B = B \cup A$ $A \cap B = B \cap A$	Commutative laws
$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$	Distributive laws
$\overline{A \cap B} = \overline{A} \cup \overline{B}$ $\overline{A \cup B} = \overline{A} \cap \overline{B}$	De Morgan's laws
$A \cup (A \cap B) = A$ $A \cap (A \cup B) = A$	Absorption laws
$A \cup \overline{A} = U$ $A \cap \overline{A} = \emptyset$	Complement laws

Problems

- List the elements in the set $\{x \in \mathbb{R} \mid x^3 - x = 0\}$
- Let P be the set of prime numbers, and let $M = \{2n^2 + 11 \mid n \in \mathbb{Z}\}$.
Is $M \subset P$? Is $P \subset M$?



- What set is shaded in this Venn diagram?
- Prove the absorption law $A \cup (A \cap B) = A$.
- Show that $A \subset B \iff \overline{B} \subset \overline{A}$.