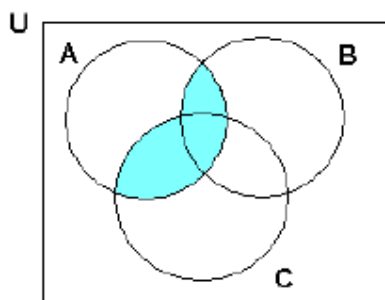
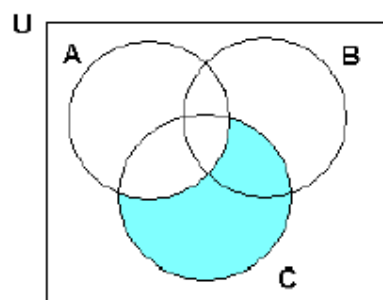


Note: A' represents A^c

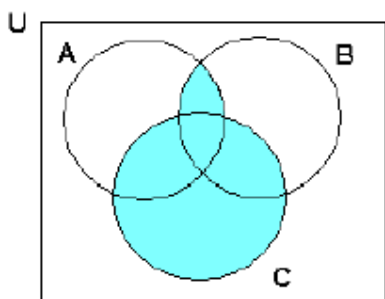
- For the sets $A = \{1, 2, 3\}$, $B = \{2, 3, 5\}$ and $C = \{5, 7, 9\}$, find
 - $A \cup B$
 - $A \cap B$
 - $A \cap C$
 - $A \cup B \cup C$
 - $A \cup (B \cap C)$
- Use Venn diagrams to show which of the following are true/false.
 - $A \cup (B \cup C) = (A \cup B) \cup C$
 - $A \cap (B \cup C) = (A \cap B) \cup C$
 - $(A \cap B) \cup C = (A \cup C) \cap (B \cup C)$
- If $R = \{r \mid r \text{ is a real number}\}$ and $Q = \{q \mid q \text{ is a rational number}\}$, which of the following are true?
 - $R \subset Q$
 - $Q \subset R$
 - $Q \cap R = Q$
 - $Q \cup R = Q$
- Let $U = \{2, 4, 6, 8, 10, 12, 15\}$, $A = \{2, 6, 12\}$, $B = \{6, 8, 12, 15\}$ and $C = \{4, 8\}$. Determine each of the following:
 - $A \cup B$
 - $B \cap C'$
 - $(A \cap B) \cup C$
 - $((A \cup B) \cup C)'$
- Describe the shaded region in each Venn diagram of the following figures, using an expression involving the sets.



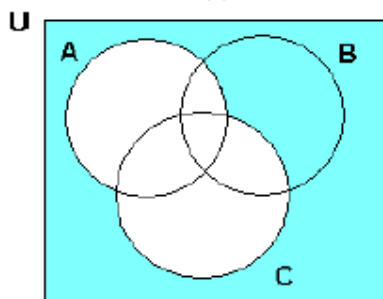
(a)



(b)



(c)



(d)

6. A survey of 1000 people was conducted to determine the extent to which they attempt to learn the news of the day. It was found that 400 people regularly watch the news on TV, 300 people regularly listen to the news on the radio, and 275 people regularly get the news from both TV and radio.
- Construct a Venn diagram summarizing the results of the survey.
 - How many of the respondents watch the news only on TV?
 - How many listen to the news only on the radio?
 - How many respondents do not listen to the news on either radio or TV?
7. If $U = \{\text{positive integers}\}$, $A = \{a \mid a \in N, a < 2\}$, $B = \{b \mid b \in N, b > 4\}$, what are the following sets?
- A'
 - B'
 - $(A \cup B)'$
 - $A' \cup B'$
 - $(A \cap B)'$
 - $A' \cap B'$