

Practice Questions for Lecture No. 7 to 9

Question 1:

Let the universal set $U = \{a, b, c, d, e, f, g\}$ and let $A = \{a, c, e, g\}$ and

$B = \{d, e, f, g\}$. Find $A \cup B$, $A \cap B$, $B - A$, and A^c .

Question 2:

Let the universal set be the set \mathbf{Z} of integers and let

$A = \{x \in \mathbf{Z} \mid 0 < x \leq 2\}$, $B = \{x \in \mathbf{Z} \mid 1 \leq x < 4\}$, and

$C = \{x \in \mathbf{Z} \mid 3 \leq x < 9\}$.

Find each of the following:

a) $A \cup B$

b) $A \cap B$

c) A^c

d) $A \cup C$

e) $A \cap C$

f) B^c

g) $A^c \cap B^c$

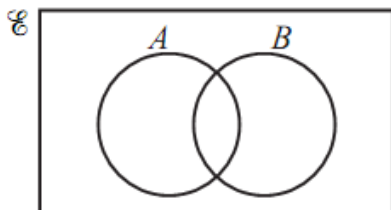
h) $A^c \cup B^c$

i) $(A \cap B)^c$

j) $(A \cup B)^c$

Question 3:

The sets A and B are shown on the Venn diagram as given below. The element y is such that $y \in A$ and $y \notin B$. On the diagram, write y in the correct region.



Question 4:

Prove that $A - (A - B) = (A \cap B)$ by using Membership Table.

Question 5:

Let $A =$ numbers divisible by 4 and less than 20
and $B =$ positive even numbers less than 20

Find the following

(a) $A \cap B$

(b) $B - A$