Sets Ex 1.6 Q1

The smallest set A such that

$A \cup \{1,2\} = \{1,2,3,5,9\}$ is $\{3,5,9\}$

$\because$ $\{3,5,9\} \cup \{1,2\} = \{1,2,3,5,9\}$

Any other set B such that $B \cup \{1,2\} = \{1,2,3,5,9\}$ will contain A. For example we contake B to be $\{1,3,5,9\}$ or $\{1,2,3,5,9\}$. Clearly B contains $A = \{3,5,9\}$.

Sets Ex 1.6 Q2(i)

i. $A = \{1,2,4,5\}, B = \{2,3,5,6\}, C = \{4,5,6,7\}$

$B \cap C = \{5,6\}$

$A \cup (B \cap C) = \{1,2,4,5,6\} \ldots\ldots\ldots (1)$

$(A \cup B) = \{1,2,3,4,5,6\}$

$(A \cup C) = \{1,2,4,5,6,7\}$

$(A \cup B) \cap (A \cup C) = \{1,2,4,5,6\} \ldots\ldots\ldots\ldots (2)$

From eq^n (1) and eq^n (2), we get

$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

Sets Ex 1.6 Q2(ii)

ii. $A = \{1,2,4,5\}, B = \{2,3,5,6\}, C = \{4,5,6,7\}$

$B \cup C = \{2,3,4,5,6,7\}$

$A \cap (B \cup C) = \{2,4,5\} \ldots\ldots\ldots (1)$

$(A \cap B) = \{2,5\}$

$(A \cap C) = \{4,5\}$

$(A \cap B) \cup (A \cap C) = \{2,4,5\} \ldots\ldots\ldots\ldots (2)$

From eq^n (1) and eq^n (2), we get

$A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

Sets Ex 1.6 Q2(iii)

iii. $A = \{1, 2, 4, 5\}, B = \{2, 3, 5, 6\}, C = \{4, 5, 6, 7\}$

$B - C = \{2, 3\}$

$A \cap (B - C) = \{2\} \ldots\ldots\ldots (1)$

$(A \cap B) = \{2, 5\}$

$(A \cap C) = \{4, 5\}$

$(A \cap B) - (A \cap C) = \{2\} \ldots\ldots\ldots\ldots (2)$

From eq^n (1) and eq^n (2), we get

$A \cap (B - C) = (A \cap B) - (A \cap C)$

********** END **********