

Let $U = \{1, 2, 3, 4, \dots, 20\}$,

$A = \{x: 5 < x \leq 10\}$,

$B = \{x: 8 \leq x \leq 15\}$

$C = \{x: 1 \leq x \leq 5\}$.

Find $(A \cap B \cap C) \cup C$.

- $A = \{6, 7, 8, 9, 10\}$
- $B = \{8, 9, 10, 11, 12, 13, 14, 15\}$
- $C = \{1, 2, 3, 4, 5\}$

Now finding $(A \cap B \cap C)$

- $(A \cap B \cap C) = \emptyset$ as there are no common elements in A, B and C

So, calculating $(A \cap B \cap C) \cup C$.

- $(A \cap B \cap C) \cup C = \emptyset \cup C = C$
- so, $(A \cap B \cap C) \cup C = \{1, 2, 3, 4, 5\}$