Name:
Stu#: SOLUTIONS

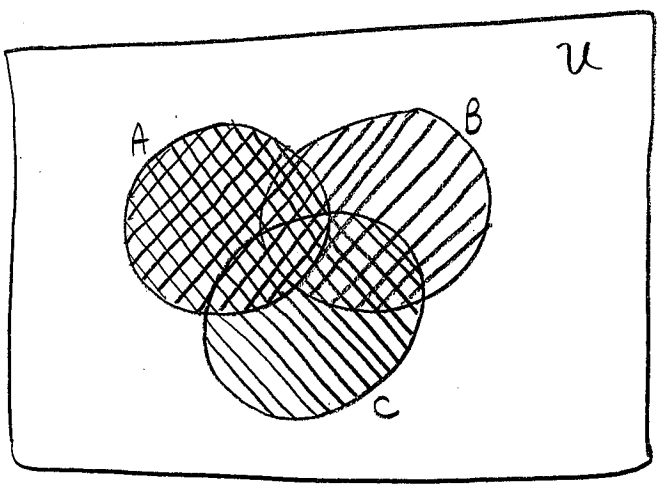
(1) [5 points] If $U = \{0,1,2,3,4,5,6,7,8,9\}$ is the universal set and $A = \{0,1,5,7\}$, $B = \{2,3,5,8\}$ and $C = \{5,6,9\}$, determine $(A \cap B) \cup (B \cap C)$.

$A \cap B = \{5\}$

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

$(A \cap B) \cup (B \cap C) = \{5\}$

(2) [5 points] Use a Venn Diagram to illustrate the set $(A \cup B) \cap (A \cup C)$.




$A \cup B$


$A \cup C$


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

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(3) [5 points] Determine $n(A)$ if $n(B) = 8$, $n(A \cap B) = 4$, and $n(A \cup B) = 14$.

$$n(A \cup B) = n(A) + n(B) - n(A \cap B)$$

$$14 = n(A) + 8 - 4$$

$$\therefore n(A) = 14 - 8 + 4$$

$$= 10$$