Question

Draw a Venn diagram of sets A, B and C where A subset equal to B, A intersection C doesn't equal to $\emptyset$, B intersection C doesn't equal to $\emptyset$. What is the universal set you have chosen? Justify your choice of sets in the diagram.

Solution
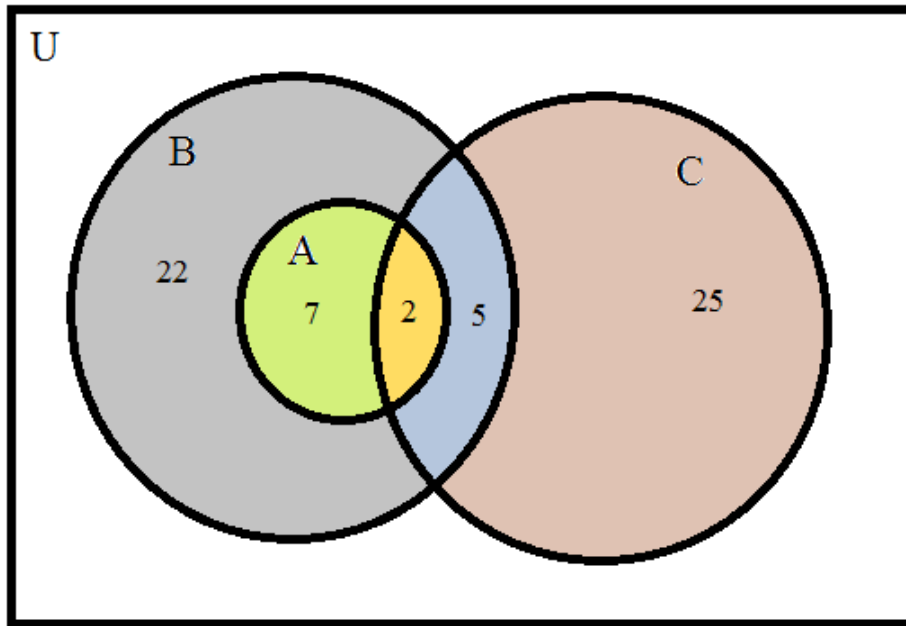
$|A| = 9 \ elements$
$|B| = 36 \ elements$
$A \subseteq B$
$|C| = 32 \ elements$
$|B \cap C| = 7 \ elements$
$|A \cap C| = 2 \ elements$
$U = A \cup B \cup C = B \cup C$
$|U| = |B| + |C| - |B \cap C| = 61 \ elements$