

Cardinality on Set Operations

Example:

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

If $n(A) = 15$, $n(B) = 13$, $n(C) = 6$, $n(A \cap B) = 5$, $n(B \cap C) = 3$, $n(A \cap C) = 4$, and

$n(A \cap B \cap C) = 2$, then $n(A \cup B \cup C) = 15 + 13 + 6 - 5 - 3 - 4 + 2 = 24$

PREVIEW

1) If $n(P) = 20$, $n(Q) = 10$, $n(R) = 27$, $n(P \cap Q) = 11$, $n(Q \cap R) = 17$, $n(P \cap R) = 9$ and

$n(P \cap Q \cap R) =$ _____

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$n(P \cup Q \cup R) =$ _____

2) If $n(X) = 6$, $n(Y) = 8$, $n(Z) = 12$, and

$n(X \cup Y \cup Z) =$ _____

$n(X \cap Y \cap Z) =$ _____

3) If $n(K) = 10$, $n(L) = 15$, $n(M) = 20$, and

$n(K \cap L \cap M) = 10$, $n(K \cap L) = 5$, $n(L \cap M) = 10$, and

$n(K \cup L \cup M) =$ _____

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