

### Answer on Question #39752 - Math - Statistics

**Question:** Suppose  $P(A \text{ or } B) = 2/3$  and  $P(A) = 1/4$ . Assume A and B are independent events. Find  $P(B)$ . Hint: A and B are NOT disjoint.

**Solution:**  $2/3 = P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$  [A and B are independent, so  $P(A \text{ and } B) = P(A)P(B)$ ]  
 $2/3 = P(A) + P(B) - P(A)P(B) = 1/4 + P(B) - (1/4)P(B) = 1/4 + (3/4)P(B)$ .

Then  $P(B) = (2/3 - 1/4) * (4/3) = (5/12) * (4/3) = 5/9$ .

**Answer:**  $P(B) = 5/9$ .