IB Statistics and Probability Problem 021

Two restaurants, Centre and Nouveau, serve fish sandwiches and salads.

Let F be the event "a customer chooses a fish sandwich".

Let S be the event "a customer chooses a salad".

Let N be the event "a customer chooses neither a fish sandwich nor a salad".

At restaurant Centre, $P(F) = 0.31; P(S) = 0.62; P(N) = 0.14$.

A. Show that $P(F \cap S) = 0.07$.

B. Given that a customer chooses a salad, find the probability that this customer also chooses a fish sandwich.

C. Are events F and S independent? Justify your answer.

At restaurant Nouveau, $P(N) = 0.14$. Twice as many customers choose a salad as a fish sandwich. Choosing a fish sandwich is independent of choosing a salad.

D. Find the probability of choosing a fish sandwich.