The correct answer is \*\*(A) Compare the ratios 510/412,878 and 1,601/164,128\*\*. Here's why:

\*\*Understanding the Goal\*\*

The goal is to determine if wearing a seatbelt reduces the likelihood of a fatal accident. This is a conditional probability problem. We need to look at the \*probability of a fatal accident\* \*given\* whether or not a seatbelt was worn.

\*\*Why Option A is Correct\*\*

\* \*\*510/412,878:\*\* Represents the proportion of accidents that were fatal \*given\* that a seatbelt was worn. It's the number of fatal accidents with seatbelts (510) divided by the total number of accidents with seatbelts (412,878).

\* \*\*1,601/164,128:\*\* Represents the proportion of accidents that were fatal \*given\* that a seatbelt was \*not\* worn. It's the number of fatal accidents without seatbelts (1,601) divided by the total number of accidents without seatbelts (164,128).

\* \*\*Comparison:\*\* By comparing these two ratios, we are directly comparing the risk of a fatal accident in the two groups (seatbelt vs. no seatbelt). If the first ratio is significantly smaller than the second, it suggests that seatbelts are associated with a lower risk of fatal accidents.

\*\*Why the Other Options are Incorrect\*\*

\* \*\*(B) Compare the ratios 510/577,006 and 1,601/577,006:\*\* This compares the proportion of all fatal accidents that occurred \*with\* and \*without\* seatbelts. While these ratios may provide an insight to the overall number of fatalities, they are not looking at the rates conditional on wearing or not wearing a seat belt. The denominators are the same for each of the ratios.

\* \*\*(C) Compare the numbers 510 and 1,601:\*\* Simply comparing the \*counts\* of fatal accidents is misleading. The total number of accidents in each group is different. You need to account for the varying sample sizes. Simply comparing the numbers without normalizing by the total number of accidents for each safety equipment group is not enough information to make a conclusion about the effectiveness of a seatbelt.

\*\*In Summary\*\*

Option (A) uses the correct approach, calculating and comparing conditional probabilities to assess the relationship between seatbelt use and fatal accidents. This allows us to determine the probability of a fatal accident given the presence or absence of seatbelt use.