As a graduate statistics student answering this exam question:

The correct answer is (A) Compare the ratios 510/412,878 and 1,601/164,128.

Explanation:

To determine if wearing a seatbelt reduces the likelihood of a fatal accident, we need to compare the fatality rates between the two groups. The appropriate comparison is to calculate the proportion of fatal accidents in each group (seat belt vs. no seat belt).

The fatality rate for those wearing seat belts is:

510/412,878 = 0.00124 (or 0.124%)

The fatality rate for those not wearing seat belts is:

1,601/164,128 = 0.00975 (or 0.975%)

This comparison allows us to standardize the data by accounting for the different group sizes. It shows the probability of a fatal accident conditional on whether a person is wearing a seat belt or not.

Option (B) is incorrect because it compares the number of fatalities to the total number of accidents, not distinguishing between the seat belt and no seat belt groups.

Option (C) is incorrect because it simply compares the raw counts of fatalities without accounting for the different sizes of the two groups (there are many more people in the seat belt group than in the no seat belt group).