Odds Funsheet

Problem 1

The table below shows the results for drivers and passengers in auto accidents in Florida in 2008 according to whether or not the individual was wearing a seatbelt

	Injury		
	Fatal	Nonfatal	Total
No Seatbelt	1,085	55,623	56,708
Yes Seatbelt	703	441,239	441,942
Total	1,788	496,862	498,650

Part A: What is the probability that somebody was not wearing a seatbelt *and* was in a non-fatal car accident?

Part B: *Given* that somebody was not wearing a seatbelt, what is the probability that they were in a nonfatal accident?

Part C: What are the odds that somebody not wearing a seatbelt was in a fatal accident? What are the odds that somebody who *was* wearing a seatbelt was in a fatal accident?

Part E: Using what you found in Part C, offer a statement for each of the following:

- How do the odds of being in a fatal accident for somebody not wearing a seatbelt compare to somebody wearing a seatbelt?
- How do the odds of being in a fatal accident for somebody wearing a seatbelt compare to somebody not wearing a seatbelt?

Part F: What is the relationship between the two statements made in Part E?

Problem 2

The table below shows the results of a 1988 Harvard Medical School clinical trial examining the efficacy of aspirin in prevent heart attacks in middle-aged male physicians

	Myocardial Infarction	
	Attack	No Attack
Placebo	189	10,845
Aspirin	104	10,933

Part A: Given that somebody did not have a heart attack, what is the probability that they were given a placebo? How does this compare with the probability of being assigned a placebo given that they did have a heart attack?

Part B: What are the odds that somebody given aspirin did not have a heart attack? What about the odds that somebody given placebo did not have a heart attack?

Part C: Report the odds ratio of having a heart attack between the placebo and aspirin groups such that $\theta \geq 1$. Based on this, does there appear to be an association between these variables?