Chi-Square and Measures of Association

1. The following data represents a study concerning car accidents and seatbelt use.

(a) Determine if there is a relation between wearing seatbelts and car fatalities using a chi-square test of independence. Use alpha = .05. Indicate the critical value, and report your findings in APA format. How strong is this association?

(b) What is the probability of someone ending up in a fatal crash? Why type of probability have you computed?

(c) What is the probability of someone ending up in a fatal crash, given that they don't wear seatbelts? What type of probability have you computed?

	wear seatbelts	**don't wear seatbelts**	total
fatal crash	40	85	125
nonfatal crash	210	145	355
total	250	230	480

2. Gene Siskel and Roger Ebert reviewed thousands of movies in their career and rated each with either a "thumbs up" or a "thumbs down." A sample of 1000 of their reviews was evaluated to determine if the movie critics tended to agree or disagree on the film quality. Compute the percentage of agreement as well as Cohen's Kappa on the data below.

		Ebert	
		thumbs up	thumbs down
Siskel	thumbs up	390	145
	thumbs down	90	375