MA117 - Worksheet 8
Hypothesis Testing for Differences of Proportions
Week 2, Thursday

For each of the following, choose a different significance level. Then answer the question using both (a) a confidence interval and (b) a p-value hypothesis test.

Problem 1. According to a report on sleep deprivation by the Centers for Disease Control and Prevention, the proportion of California residents who reported insufficient rest or sleep during each of the preceding 30 days is 8.0%, while this proportion is 8.8% for Oregon residents. This data is based on simple random samples of 11,545 California and 4,691 Oregon residents. Are the rates of sleep deprivation different in California and Oregon?

Problem 2. The National Sleep Foundation conducted a survey to measure rates of sleep deprivation (defined as getting less than 6 hours of sleep per night) among truck-sdrivers as compared to non-truck-drivers. The study found that 35 out of 203 randomly sampled truck-drivers were sleep deprived, compared to 35 out of 292 non-truck-drivers. Does this data provide evidence of a difference in the proportion of people who are sleep deprived between the truck-driver group and the non-truck-driver group?

Problem 3. Researchers studying the link between autism and prenatal vitamin use in the three months before pregnancy surveyed the mothers of a random sample of children with autism and another random sample of children without autism. The contingency table summarizes the results of these surveys.

	Autism	No Autism	Total
No Prenatal Vitamins	111	70	181
Prenatal Vitamins	143	159	302
Total	254	229	483

Does this data suggest that prenatal vitamin use is independent of autism?