Difference Between Two Proportions

Difference_Two_Proportions.tns

Name _____

Class _____

Problem 1 – Estimating a Confidence Interval

Customers randomly selected at a grocery store included 172 women and 45 men. 74 of the women and 12 of the men used coupons.

1.5: Calculate the two proportions and then find the difference between them.

p_1: _____ p_2: _____ $p_1 - p_2$: _____

Calculate E at the 95% level: _____

1.6: Find the 95% Confidence Interval: _____

1.7: Now calculate the margin of error and confidence interval at the 90% level.

E: _____   Confidence Interval: _____

Check your answers using the **2-Prop z Interval** command from the Statistics menu.

Problem 2 – Practice Problems

A principal reported that the same percent of juniors and seniors felt that the homecoming should have been postponed due to rain. A student checks this claim by randomly surveying 85 juniors and 57 seniors. Respectively, 66 and 40 of those students said homecoming should have been postponed.

2.2: Find the 95% confidence interval for difference between the proportions.

2.3: What do you think of the principal's claim?

In an experiment for a new drug, 174 patients took the drug and 66 of those reported headaches, while 217 patients took the placebo and 58 of those reported headaches.

2.5: Find the 95% confidence interval for difference between the proportions.

2.6: Is there reason to believe a side effect of the new drug may be headaches?

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Problem 3 – Sample Size

The formula to find the required sample size for a given margin or error and confidence interval is given on page 3.1. Suppose you want to know the difference in proportion of men and women that shop for new cars online.

3.3: Find the required sample size of each sample. You want a 95% confidence level and a margin of error of no more than 4%.

3.4: Find the required sample size when the margin of error is changed to 2%.

Problem 4 – Extension

Use algebra to derive the formula for the required sample size from the formula for finding the margin of error. (Replace n_1 and n_2 with n).