

Lab Assignment #24

This lab is due at 9:35 AM on Wednesday 5/1 and is worth 6 points. This may be done individually, or in a group of 2 or 3 people.

Write a 1-sentence summary for each problem. Write hypotheses for each hypothesis test problem.

1)a) Two department stores compare their inventory to determine if either has a higher percentage of purchased items returned within 90 days. Penstrom's finds that 14.3% of 1000 items get returned within 90 days, and data from Kohcy's show that 18.8% of 1500 items get returned within 90 days. At the 10% significance level, test the claim that the proportions of items returned to each store within 90 days are equal.

b) Find a 90% confidence interval for the difference in proportion of items returned to each store.

2a) A national political party wonders if affiliation with the party is lower for females than males. Here, p_F is the proportion of all American adult females who are members of the party, and p_M is the proportion of all American adult males who are members of the party. A survey finds that of 500 females, 129 are registered with the party, and of 600 males, 168 are registered with the party. At the 2.5% significance level, test the claim.

b) Find a 95% confidence interval for the difference in proportions of all American adult females and males who are members of the party.

3) Do coin flips depend on which coin is used? A really bored statistics student flips a quarter 8,000 times and counts 4,062 heads and 3,938 tails. Assume those coin flips are a sample of all possible flips. The same student, still incredibly bored, flips a nickel 5,000 times, and counts 2,516 heads and 2,484 tails. Is there evidence that the proportions of heads (on all possible flips) is different for the quarter and the nickel?