

Honors Statistics 8.2

Use the traditional method for #1 and #2. (4 steps)

1. In a survey of 1150 adult males, 805 said they use the Internet. In a survey of 1050 females, 746 said they use the Internet. At $\alpha = 0.10$, test the claim the proportions of Internet users are the same for both groups.
2. A *USA today* article stated "In a trial involving 1602 children only 14 of the 1070 who received the vaccine developed the flu, compared with 95 of the 532 who got a placebo." The article also referred to a study claiming that the experimental nasal spray "cuts children's chances of getting the flu." At $\alpha = 0.05$, Is there sufficient sample evidence to support the stated claim?

Use the P-value method for #3 and #4. (4 steps)

3. In a random survey of 1500 adults in California and 1000 adults in Oregon, the percentage of smokers are 15.2% and 18.5%, respectively. At $\alpha = 0.01$, test the claim that the proportion of adults who are smokers is lower in California than in Oregon.
4. In a 1991 study of 1539 adults, 520 said they had used alternative medicines in the previous year. In a more recent study of 2055 adults, 865 said they had used alternative medicines in the previous year. At $\alpha = 0.01$, test the claim that more adults are now using alternative medicines.

Confidence Interval for #5 and #6. (2 steps)

5. Several years ago, a survey of 977,000 students taking the SAT revealed that 11.7% of the students were planning to study engineering. In a recent survey of 1,085,000 students taking the SAT, 8.5% of the students were planning to study engineering. Construct a 95% confidence interval for the difference in the proportions. Is there a significant difference?
6. A state by state survey found that the proportions of adults who smoke in Alabama and Missouri were 24.4% and 26.6%, respectively. In each state, 2000 adults were interviewed. Construct a 90% confidence interval for the difference of the proportion of adults who smoke in Alabama and Missouri. Is there a significant difference?

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Honors Statistics
Review 8.2 - Answers

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|----|---|---------------------|--------------------|---------------------|
| 1) | 2-tail | CV: $z = \pm 1.645$ | $z = -0.538$ | Fail to reject null |
| 2) | Left tail | CV: $z = -2.327$ | $z = -12.388$ | Reject null |
| 3) | Left tail | $z = -2.177$ | p-value 0.0148 | Fail to reject null |
| 4) | Right tail | $z = -5.062$ | p-value .000000208 | Reject null |
| 5. | $(0.03117, .03283)$; there is a significant difference | | | |
| 6. | $(-0.0447, .00066)$; not a significant difference | | | |