

Project 8 Examples: One Proportion Test (Binomial Distribution)

Example 1

A dean claims that more than 50% of the students at her school are female. A random sample of 60 students showed that 33 were female. Use the 0.05 level of significance to test the dean's claim.

Step 1 H_0 :

H_1 :

Step 2 $\alpha =$

Step 3 One Proportion Test (Binomial Distribution)

Step 4 P -value

Step 5 We Reject / Fail to Reject H_0 .

There is / is not sufficient evidence to support that ...

Example 2

A pharmaceutical company claims that less than 8% of the patients experience headaches as a side effect of their new allergy medication. A random sample of 95 patients showed that 4 experienced headaches as a side effect. Use the 0.05 level of significance to test the company's claim.

Example 3

Apple claims that 35% of college students own an iPhone. A random sample of 320 college students showed that 148 owned an iPhone. Use the 0.05 level of significance to test Apple's claim.

Homework

1) In December 2001, 38% of adults with children under the age of 18 reported that their family ate dinner together 7 nights a week.

In a recent poll, 403 of 1122 adults with children under the age of 18 reported that their family ate dinner together 7 nights a week.

Has the proportion of families with children under the age of 18 who eat dinner together 7 nights a week decreased? Use the $\alpha = 0.05$ significance level.

2) In August 2003, 56% of employed adults in the United States reported that basic mathematical skills were critical or very important to their job. The supervisor of the job placement office at a 4-year college thinks this percentage has increased due to increased use of technology in the workplace.

He takes a random sample of 480 employed adults and finds that 297 of them feel that basic mathematical skills are critical or very important to their job.

Is there sufficient evidence to conclude that the percentage of employed adults who feel basic mathematical skills are critical or very important to their job has increased at the $\alpha = 0.05$ level of significance?

3) In 1994, 52% of parents of children in high school felt it was a serious problem that high school students were not being taught enough math and science.

A recent survey found that 256 of 800 parents of children in high school felt it was a serious problem that high school students were not being taught enough math and science.

Do parents feel differently today than they did in 1994? Use the $\alpha = 0.05$ level of significance.