

10.3 Making Sense of Statistical Significance

Some fields have pre-set standards for α .

The P-value describes the strength of evidence, whereas α is a decision making tool.

Large sample sizes often produce statistically significant results, even when the effect is small.

A U.S. Bureau of Standards inspector weighs a SRS of 50 6 oz. yogurt cups. Yogurt cup weights probably follow a roughly Normal distribution. Checking label accuracy, the inspector tests

$H_0: \mu=6$ against

$H_a: \mu < 6$

The manufacturer says $\sigma = 0.3$ oz. for the weights.

Is the result significant at the $\alpha=0.001$ level if the inspector found...

$\bar{x} = 5.9$ oz.?

$\bar{x} = 5.8$ oz.?

A researcher writes a new ACT prep course. The researcher tried the new course with a SRS of subjects and found $\bar{x} = 20.2$. That year, nat'l scores were not far from Normal with $\mu = 20$ & $\sigma = 1.2$. The researcher tested

$H_0: \mu = 20$ against

$H_a: \mu > 20$

Find the P-value if the researcher's sample was...
40 students.

100 students.

400 students.