Hypothesis Testing

Practice Problems

Exercise 1

Lindsey thinks a certain potato chip maker is putting fewer chips in their regular bags of chips. From a random sample of 16 bags of potato chips she calculated a p-value of 0.076 for the sample.

(a) At a 5% level of significance, is there evidence that Lindsey is correct?

(b) At a 10% level of significance, is there evidence that she is correct?

Exercise 2

In a statistical test of hypotheses, we say that the data are statistically significant at level α if

(a) $\alpha = 0.05$
(b) α is small
(c) the p value is larger than α
(d) the p value is less than α

Exercise 3

In formulating hypotheses for a statistical test of significance, the null hypothesis is often

(a) a statement that the data are all 0
(b) 0.05
(c) the probability of observing the data you actually obtained
(d) a statement of "no effect" or "no difference"

Exercise 4

According to the Merck Veterinary Manual, the average resting heart rate for a certain type of sheep dog is 115 beats per minute (bpm). A Montana farmer notices his aging sheep dog has been acting more lethargic than usual and *wonders if her heart rate is slowing.* He measures her heart rate on 15 occasions and finds a sample mean heart rate of 118.2 bpm. Select the correct null hypothesis H_0 and alternative hypothesis, H_a

(a)

$$H_0 : \mu = 118.2 H_a : \mu < 118.2$$

(b)

$$H_0 : \bar{x} = 118.2 H_a : \bar{x} \neq 118.2$$

(c)

$$H_0 : \mu = 115 H_a : \mu > 115$$

(d)

$$H_0 : \mu = 115 H_a : \mu < 115$$