

8.E: Distribution Needed for Hypothesis Testing (Optional Exercises)

? Exercise 8.E. 1

Which two distributions can you use for hypothesis testing for this chapter?

Answer

A normal distribution or a Student's t -distribution

? Exercise 8.E. 2

Which distribution do you use when you are testing a population mean and the standard deviation is known? Assume sample size is large.

? Exercise 8.E. 3

Which distribution do you use when the standard deviation is not known and you are testing one population mean? Assume sample size is large.

Answer

Use a Student's t -distribution

? Exercise 8.E. 4

A population mean is 13. The sample mean is 12.8, and the sample standard deviation is two. The sample size is 20. What distribution should you use to perform a hypothesis test? Assume the underlying population is normal.

? Exercise 8.E. 5

A population has a mean of 25 and a standard deviation of five. The sample mean is 24, and the sample size is 108. What distribution should you use to perform a hypothesis test?

Answer

a normal distribution for a single population mean

? Exercise 8.E. 6

It is thought that 42% of respondents in a taste test would prefer Brand A. In a particular test of 100 people, 39% preferred Brand A. What distribution should you use to perform a hypothesis test?

? Exercise 8.E. 7

You are performing a hypothesis test of a single population mean using a Student's t -distribution. What must you assume about the distribution of the data?

Answer

It must be approximately normally distributed.

? Exercise 8.E. 8

You are performing a hypothesis test of a single population mean using a Student's t -distribution. The data are not from a simple random sample. Can you accurately perform the hypothesis test?

? Exercise 8.E. 9

You are performing a hypothesis test of a single population proportion. What must be true about the quantities of np and nq ?

Answer

They must both be greater than five.

? Exercise 8.E. 10

You are performing a hypothesis test of a single population proportion. You find out that np is less than five. What must you do to be able to perform a valid hypothesis test?

? Exercise 8.E. 11

You are performing a hypothesis test of a single population proportion. The data come from which distribution?

Answer

binomial distribution

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