

9.3E: Distribution Needed for Hypothesis Testing (Exercises)

Exercise 9.4.1

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

Answer

A normal distribution or a Student's t -distribution

Exercise 9.4.2

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

Exercise 9.4.3

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 9.4.4

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 9.4.5

A population has a mean is 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 9.4.6

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 9.4.7

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 9.4.8

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 9.4.9

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 9.4.10

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 9.4.11

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

Answer

binomial distribution

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