Lesson 11: Inference for One Mean Sigma unknown

Homework

Solutions

Problem	Part	Solution
1	-	$t = \frac{\bar{x}-\mu}{s/\sqrt{n}}$ $z = \frac{\bar{x}-\mu}{\sigma/\sqrt{n}}$ The primary difference is that a t-score uses the sample standard deviation (s) whereas a z-score uses the population standard deviation (σ)
2	-	t = 1.591
3	-	74.724 points
4	-	(71.979 , 77.47) We are 95% confident that the true mean score for all students who take this exam is between 71.979 and 77.47
5	-	(4.257 , 4.571) We are 95% confident that the true mean confidence rating for all students who take this exam is between 4.257 and 4.571
6	-	a. Data was collected by a simple random sample. (We assume that this is true) b. $\bar{x}$ is normally distributed. (We can assume the distribution of sample means is normally distribute
7	-	$H_o : \mu = 4.12$ $H_a : \mu > 4.12$
8	-	t = 3.693
9	-	df = 138
10	-	P-value = 0.00016 $< 0.05 = \alpha$
11	-	reject the null hypothesis
12	-	There is sufficient evidence to suggest that the confidence rating scores for this year are significantly higher than two years before
13	-	(2.808 , 2.988) We are 90% confident that the true mean weight of Oreo filling is between 2.808 and 2.988 grams
14	-	(5.591 , 5.92) We are 90% confident that the true mean mean weight of DoubleStuf Oreo filling is between 5.591 and 5.92 grams
15	-	It is likely. The mean for the double stuf Oreos is a little more than twice as big as the mean for the traditional Oreos. The confidence intervals provide plausible true means for each cookie type. The intervals indicate that there might be a little less than twice the stuffing or a little more than twice the stuffing