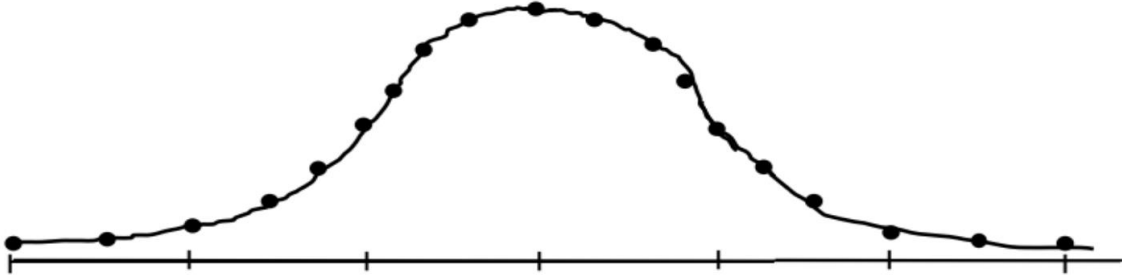


Sampling Distribution of the Sample Mean:

1 For a population of students, the Math SAT scores follow a Normal Distribution with a mean score of 630 and a standard deviation 100. A student is selected from this population. What is the probability that her score is at least 610: ? (Chapter 7)

(A) 0.4207 (B) 0.9772 (C) 0.5793 (D) 0.0228 (E) Not (A), (B), (C) or (D)

Also Label and Shade the Region of Normal Curve associated with this Probability.

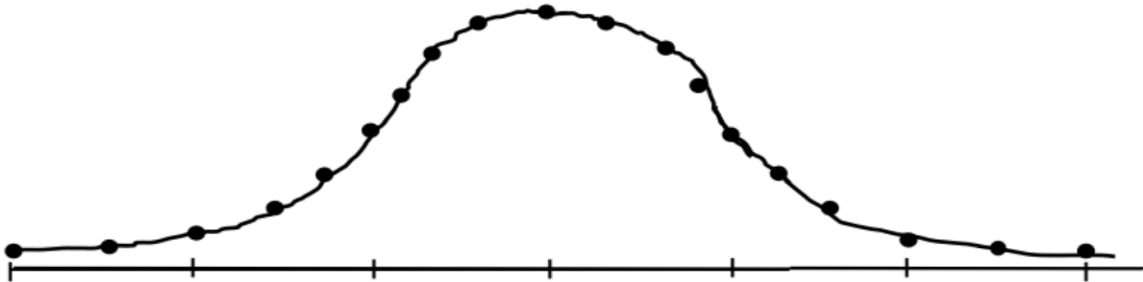


2

For a population of students, the Math SAT scores follow a Normal Distribution with a mean score of 630 and a standard deviation 100. A sample of 100 students is drawn from this population. What is the probability that the Sample Mean is at most 610. (Chapter 8)

(A) 0.4207 (B) 0.9772 (C) 0.5793 (D) 0.0228 (E) Not (A), (B), (C) or (D)

Also Label and Shade the Region of Normal Curve associated with this Probability.



Question 8

Suppose that the distribution for total amounts spent by students vacationing for a week in Florida is normally distributed with a mean of 650 and a standard deviation of 120. Suppose you take a simple random sample (SRS) of 45 students from this distribution.

Type numbers in the boxes.

10 points

What is the probability that a SRS of 45 students will spend an average of between 600 and 700 dollars? Round to five decimal places.

Probability for Sample Proportion:

- (1) Suppose that 83% of all dialysis patients will survive for at least 5 years.

In a simple random sample of 100 new dialysis patients, what is the probability that the proportion surviving for at least five years will exceed 80%, rounded to 5 decimal places?

Hypothesis Test of the Sample Mean:

- (1) A group of 74 college students from a certain liberal arts college were randomly sampled and asked about the number of alcoholic drinks they have in a typical week. The purpose of this study was to compare the drinking habits of the students at the college to the drinking habits of college students in general. In particular, the dean of students, who initiated this study, would like to check whether the mean number of alcoholic drinks that students at his college in a typical week **differs** from the mean of U.S. college students in general, which is estimated to be 4.73.

The group of 74 students in the study reported an average of 4.60 drinks per with a standard deviation of 3.81 drinks.

Find the p-value for the hypothesis test.

The p-value should be rounded to 4-decimal places.

- (2) Commute times in the U.S. are heavily skewed to the right. We select a random sample of 240 people from the 2000 U.S. Census who reported a non-zero commute time.

In this sample the mean commute time is 28.9 minutes with a standard deviation of 19.0 minutes. Can we conclude from this data that the mean commute time in the U.S. **is less than** half an hour? Conduct a hypothesis test at the 5% level of significance.

What is the p-value for this hypothesis test?

Your answer should be rounded to 4 decimal places.

Confidence Interval Sample Proportion:

- (1) In 2015 as part of the General Social Survey, 1145 randomly selected American adults responded to this question:

“Some countries are doing more to protect the environment than other countries. In general, do you think that America is doing more than enough, about the right amount, or too little?”

Of the respondents, 474 replied that America is doing about the right amount. What is the 95% confidence interval for the proportion of all American adults who feel that America is doing *about the right amount* to protect the environment.

Answer: (0.385, 0.443)



- (2) The ability to find a job after graduation is very important to GSU students as it is to the students at most colleges and universities.

Suppose we take a poll (random sample) of 3894 students classified as Juniors and find that 2853 of them believe that they will find a job immediately after graduation.

What is the 99% confidence interval for the proportion of GSU Juniors who believe that they will, immediately, be employed after graduation.

Answer: (0.714, 0.751)

Answers

Sampling Distribution Sample Mean:

1. C
2. D
3. Question 8: 0.99481

Sampling Distribution Proportions:

1. 0.78775

Hypothesis Test

1. 0.7700
2. 0.1853

Confidence Intervals

1. (0.385,0.443)
2. (0.714,0.751)

Questions, Feedback, Corrections...WELCOMED

adarrisaw@gsu.edu

(404)408-5842