

HW7.Problems

2020年3月28日 星期六 下午4:39



Homework 7...

Homework 7: MATH661104-Applied Statistics

3/28/20, 4:38 PM

Homework 7

Due Apr 1 at 11:59pm

Points 20

Questions 5

Available Mar 28 at 8am - Apr 1 at 11:59pm 5 days

Time Limit None

Allowed Attempts 2

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	2 minutes	20 out of 20
LATEST	Attempt 2	2 minutes	20 out of 20
	Attempt 1	45 minutes	16 out of 20

Correct answers are hidden.

Score for this attempt: 20 out of 20

Submitted Mar 28 at 4:37pm

This attempt took 2 minutes.

Question 1

4 / 4 pts

A coin is about to be tossed multiple times. Assume the coin is fair, that is, the probability of heads and the probability of tails are both 0.5. If the coin is tossed 60 times, what is the probability that less than $\frac{1}{3}$ of the tosses are heads?

☒ 0.0034

☐ 0.094

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☐ 0.109

☐ 0.344

☐ 0.0049

Question 2

4 / 4 pts

A one-question survey is to be distributed to a random sample of 1500 adults in Ohio. The question asks if they support an increase in the state sales tax from 5% to 6%, with the additional revenue going to education. Let \hat{p} denote the proportion of adults in the sample who say they support the increase. Suppose that 40% of all adults in Ohio support the increase. How large of a sample would be needed to guarantee that the standard deviation, $\sigma_{\hat{p}}$, is no more than 0.01?

☐ 100

☐ 1000

☐ 1500

☒ 2400

Question 3

4 / 4 pts

A one-question survey is to be distributed to a random sample of 150

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☒ 0.0062

☐ 0.1

☐ 0.4602

☐ 0.50

☐ 0.9938

Question 4

4 / 4 pts

A population variable has a distribution with a mean of $\mu = 50$ and a variance of $\sigma^2 = 225$. From this population a simple random sample of n observations is to be selected and the mean \bar{x} of the sample values calculated. If the population variable is known to be Normally distributed and the sample size used is to be $n = 16$, what is the probability that the sample mean will be between 48.35 and 55.74, that is, $P(48.35 \leq \bar{x} \leq 55.74)$?

☐ 0.393

☒ 0.607

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☐ 0.937

☐ 0.330

☐ None of the other options

Question 5

4 / 4 pts

Of the total population of the United States, 20% live in the northeast. If 200 residents of the United States are selected at random, approximate the probability that at least 50 live in the northeast. Use continuity correction. ROUND YOUR ANSWER TO 4 DECIMAL PLACES.

$x \sim N(200, 40)$
 $\mu = np = 40$
 $\sigma = \sqrt{npq} = \sqrt{32}$
 $z = \frac{49.5 - 40}{\sqrt{32}}$
 $x \geq 49.5$

Quiz Score: 20 out of 20

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