Midterm Exam 1 Practice

Due No due date **Points** 0 **Questions** 8
Available Feb 12 at 12am - May 8 at 11:59pm 3 months **Time Limit** 60 Minutes
Allowed Attempts Unlimited

Instructions

The length of this exam is 60 minutes. Canvas will automatically close the exam when the timer expires.

All Academic Integrity rules apply to this exam. Any instances of academic dishonesty will be pursued under the University and Eberly College of Science regulations concerning academic integrity.

By proceeding to the exam you confirm that this entire exam is your own work only and that you haven't received help from anyone or provided help to anyone for any part of this exam.

Take the Quiz Again

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	4 minutes	0 out of 0 *
LATEST	Attempt 2	4 minutes	0 out of 0 *
	Attempt 1	60 minutes	0 out of 0 *

* Some questions not yet graded

ⓘ Correct answers are hidden.

Score for this attempt: **0** out of 0 *
Submitted Feb 22 at 4:14am
This attempt took 4 minutes.

Question 1	**0 / 0 pts**

Let X have a gamma distribution with α=3 and θ=2. Determine the pdf of Y=$\sqrt[2]{X}$.

The p.d.f. of a gamma distribution is
$f(x) = \frac{1}{\Gamma(\alpha)\theta^{\alpha}} x^{\alpha-1} e^{-x/\theta}, 0 < x < \infty$

- (selected) $\frac{1}{8} y^5 e^{-y^2/2}$, y>0
- $\frac{1}{4} y^5 e^{-y^2/2}$, y>0
- $\frac{1}{2} y^4 e^{-y^2/2}$, y>0
- $\frac{1}{4} e^{-y^2/4}$, y>0

Unanswered

Question 2

Not yet graded / 0 pts

Upload steps for the previous question.

Question 3

0 / 0 pts

Let $X_1, \ldots, X_n$ be independent random variables, and $X_i \sim Poisson(\lambda)$. Find a MLE for λ.

- $\frac{2\bar{X}}{n+1}$
- (selected) $\bar{X}$
- $\frac{2}{\bar{X}}$

$2\bar{X}$

Question 4

0 / 0 pts

Is MLE estimator found in Question 3 unbiased?

- (●) True
- ( ) False

Unanswered

Question 5

Not yet graded / 0 pts

Assume a random sample $X_1, \ldots, X_n$ is taken from $N(\mu, \sigma^2)$, where both μ and σ^2 are unknown. Use the method of moments to construct an estimator for σ^2.

Question 6

0 / 0 pts

Is MOM estimator found in Question 5 unbiased?

- ( ) True
- (●) False

Question 7

0 / 0 pts

Lake Macatawa, an inlet lake on the east side of Lake Michigan, is divided into an east basin and a west basin. To measure the effect on the lake of salting city streets in the winter, students took 32 samples of water from the west basin and measured the amount of sodium in parts per million in order to make a statistical inference about the unknown mean μ. They obtained the following data:

13.0, 18.5, 16.4, 14.8, 19.4, 17.3, 23.2, 24.9, 20.8, 19.3, 18.8, 23.1, 15.2, 19.9, 19.1, 18.1,

25.1, 16.8, 20.4, 17.4, 25.2, 23.1, 15.3, 19.4, 16.0, 21.7, 15.2, 21.3, 21.5, 16.8, 15.6, 17.6.

Find the 95\% confidence interval for μ.

- (●) [17.94, 20.20]
- ( ) [18.01, 20.13]

Question 8

0 / 0 pts

Is the interval found in Question 7 an exact confidence interval?

- ( ) True
- (●) False

Quiz Score: **0** out of 0