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Edit Quiz

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Quiz name

Weekly quiz 4 (DUE: Fri Aug 18, 10am)

1 **MULTIPLE CHOICE** Edit

If we flip a coin (an Australian $1) ten times and get the following dataset:

H T H H T H H H T H

what is the parameter responsible for generating these ten flips?

Answer choices

A	probability of outcome, e.g. T
B	population mean
C	weight of coin
D	design of coin

2 MULTIPLE CHOICE

Edit

MLE revolves around determining the parameters which maximizes the probability of the observing this _____

Answer choices

A	experiment
B	estimate
C	distribution
D	data

3 MULTIPLE CHOICE

Edit

Going back to the coin toss observed sequence (H T H H T H H H T H), what do you think the probability of the 11th flip being Tails is? There are two logical answers:

1. If you say 0.5, that's a reasonable answer as the flips are independent of each other and the next flip being Tails has a 1/2 chance, i.e., 0.5.

2. The other answer could be 0.3. The rationale behind this answer would be that we can expect the coin flips to continue the way they have occurred until now (until the 10th flip)

Where does the value 0.3 come from?

Answer choices

A	Observed number of H
B	Observed number of T
C	Observed proportion of H
D	Observed proportion of T

4 | **TRUE/FALSE** Edit

The likelihood function for determining the best estimate for theta (the probability of T on any flip) is

$$\prod_{i=1}^{10} \theta^3 (1-\theta)^7$$

Answer

True

5 | **TRUE/FALSE** Edit

The best estimate for these, based on the MLE method, is to minimise the likelihood function.

Answer

False

6 MULTIPLE CHOICE

Edit

(Central Limit Theorem) For a sequence of independent and identically distributed random variables drawn from a distribution mean and finite variance, the sample average approximates a normal model as the sample size n gets _____

Answer choices

A	smaller
B	larger
C	better
D	bimodal

7 MULTIPLE CHOICE

Edit

A percentile is essentially a _____ (choose all that apply)

Answer choices

A	percentage
B	proportion
C	centile
D	quantile

8 **MULTIPLE CHOICE** Edit

Quantiles are cutpoints dividing the range of a probability distribution into contiguous intervals with _____ probabilities.

Answer choices

A	equal
B	unequal
C	variable
D	random

9 **MULTIPLE CHOICE** Edit

The 90th percentile is the value which has 90% of observations _____.

Answer choices

A	less than it
B	greater than it
C	equal to it
D	not equal to it

10 MULTIPLE CHOICE

Edit

If 25.7 is the 10th percentile, and 72.6 is the 60th percentile, what is the probability of observing a score between 25.7 and 72.6?

Answer choices

A	0.1
B	0.3
C	0.5
D	0.7

11 MULTIPLE CHOICE

Edit

A QQplot compares theoretical quantiles with sample quantiles, in a scatterplot. What is it used for?

Answer choices

A	Checking if the sample comes from a bimodal distribution.
B	Checking if the probability distribution might be considered to be drawn from a particular model.
C	Checking if the sample might be considered to be drawn from a particular probability distribution.
D	Checking if the probability distribution is skewed.

12 TRUE/FALSE

Edit

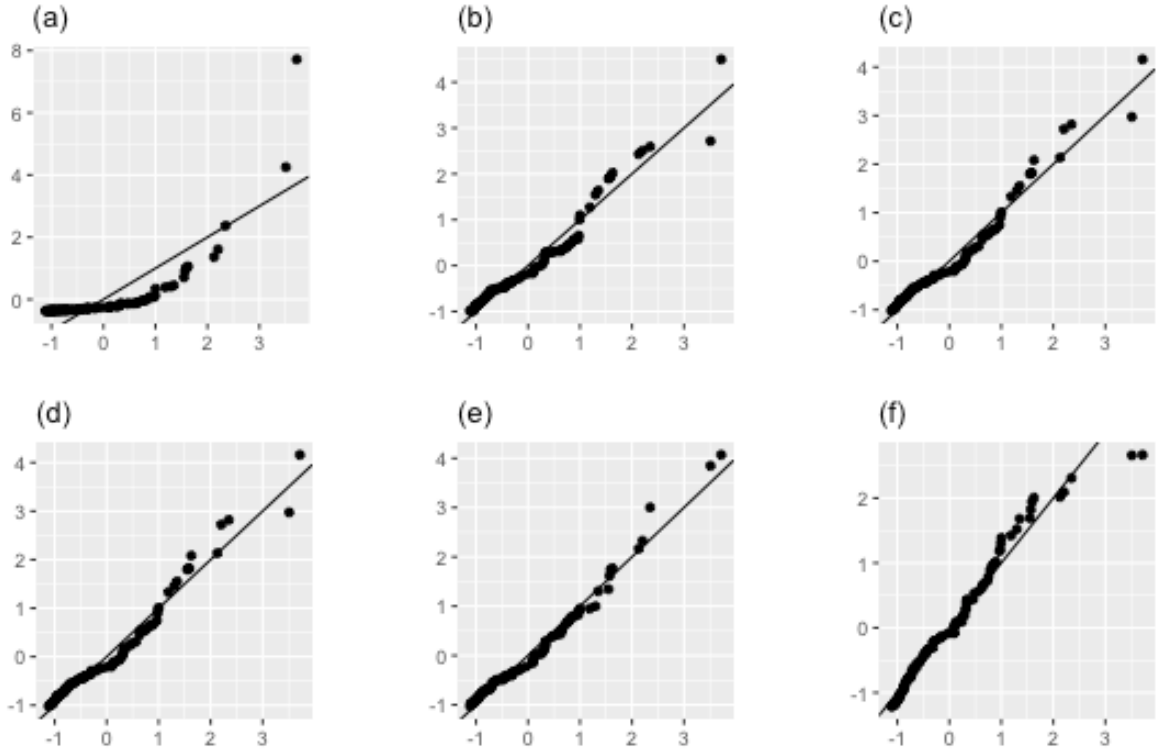
The ideal pattern to see in a QQ-plot is for all the points to lie along an X=Y line.

Answer

True

13 TRUE/FALSE

Edit



QQPlot (a) shows the best fit between sample and probability distribution

Answer

False

14 MULTIPLE CHOICE

Edit

Sampling variability means

Answer choices

A	when a different sample is collected the values will (most likely) be different from another sample
B	the values in a sample will be different from each other
C	the sample will have different values from the population distribution
D	the variance in the sample is described by the sample standard deviation

15 | SHORT ANSWER

Edit

For a continuous distribution, with random variable, X, if P(X>33.6)=0.63, what is the P(X<33.6)?

Answer

0.37

+ Multiple Choice + True/False + Short Answer