## **\**

# 恭喜!您通过了!

下一项



1/1分

1。

### For Questions 1-3, consider the following scenario:

In the example from Lesson 4.1 of flipping a coin 100 times, suppose instead that you observe 47 heads and 53 tails.

• Report the value of  $\hat{p}$  , the MLE (Maximum Likelihood Estimate) of the probability of obtaining heads.

0.47

#### 正确回答

This is simply 47/100, the number of successes divided by the number of trials.



1/1分

2.

Coin flip:

Using the central limit theorem as an approximation, and following the example of Lesson 4.1, construct a 95% confidence interval for  $\boldsymbol{p}$ , the probability of obtaining heads.

• Report the lower end of this interval and round your answer to two decimal places.

Lesson 4 测验, 6 个问题 0.37

6/6 分 (100%)

正确回答

We have

$$\hat{p}-1.96\sqrt{\hat{p}(1-\hat{p})/n}=.47-1.96\sqrt{(.47)(.53)/100}=.372$$
 , which is the lower end of a 95% confidence interval for  $p$  .



1/1分

3.

Coin flip:

• Report the upper end of this interval and round your answer to two decimal places.

0.57

#### 正确回答

We have

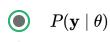
$$\hat{p}+1.96\sqrt{\hat{p}(1-\hat{p})/n}=.47+1.96\sqrt{(.47)(.53)/100}=.568$$
 , which is the upper end of a 95% confidence interval for  $p$ 

1/1分

4。

The likelihood function for parameter  $\theta$  with data  ${\bf y}$  is based on which of the following?

$$\bigcap P(\theta \mid \mathbf{y})$$



正确

## Lesson 4 测验, 6 个问题

The likelihood is based on the sampling distribution of the data, given the parameter. Note that although the likelihood has the same functional form as  $P(\mathbf{y}\mid\theta)$ , it is considered a function of  $\theta$ .

6/6分(100%)

 $\bigcap P(\theta)$ 

 $\bigcap P(\mathbf{y})$ 

None of the above.



1/1分

5。

Recall from Lesson 4.4 that if  $X_1,\ldots,X_n\stackrel{\mathrm{iid}}{\sim}\mathrm{Exponential}(\lambda)$  (iid means independent and identically distributed), then the MLE for  $\lambda$  is  $1/\bar{x}$  where  $\bar{x}$  is the sample mean. Suppose we observe the following data:

$$X_1=2.0,\ X_2=2.5,\ X_3=4.1,\ X_4=1.8,\ X_5=4.0$$
 .

Calculate the MLE for  $\lambda$  . Round your answer to two decimal places.

0.35

#### 正确回答

The sample mean is  $ar{x}=2.88$  .



1/1分

Lesson 4 测验, 6 个问题 6。
It turns out

It turns out that the sample mean  $\bar{x}$  is involved in the MLE calculation for several models. In fact, if the data are independent and identically distributed from a Bernoulli(p), Poisson( $\lambda$ ), or Normal( $\mu$ ,  $\sigma^2$ ), then  $\bar{x}$  is the MLE for p,  $\lambda$ , and  $\mu$  respectively.

6/6分(100%)

Suppose we observe n=4 data points from a normal distribution with unknown mean  $\mu$  . The data are  $\mathbf{x}=\{-1.2,0.5,0.8,-0.3\}$ 

What is the MLE for  $\mu$ ? Round your answer to two decimal places.

-0.05

#### 正确回答

This is (-1.2 + 0.5 + 0.8 - 0.3)/4 .

