How many parameters are needed to fully specify a Gaussian distribution?

- 1

- 3
- 5

Multiple Choice 1 point

Given a statistical model and some observations, which of the following is NOT consistent with following the **maximum likelihood principle** as a way to select the model parameters?

- Maximize the probability of observations under the model parameters
- Maximize the logarithm of the probability of observations under the model parameters
- Minimize the logarithm of the probability of observations under the model parameters
- Minimize the negative logarithm of the probability of observations under the model parameters

maximize: p, Inp minimize: -p, -lap

In a linear model setup with Gaussian errors, maximum likelihood estimation turns out to be equivalent to loss minimization using which loss function?

- Squared error loss
- Absolute error loss MSE is BLUF

 Cross entropy loss
 Any non-negative loss function WE 最佳 parameters

= minimize MSF

Multiple Choice 1 point

The Laplace distribution with mean m and variance 2b² has the probability density function:

$$p(x) = 1/(2b) \exp(-|x-m|/b)$$

where |x| is the absolute value of x. Consider a linear model with Laplace error distribution with mean zero and variance 2b². Maximum likelihood estimation in this model would be equivalent to loss minimization using which loss function?

 $-hp = -ln\frac{1}{26}$

- Absolute error loss
- Squared error loss
- Cross entropy loss
- Any non-negative loss function

The input to output mapping in linear regression corresponds to a very simple neural network. How many layers does this simple neural network have?

- **O** 1
- 2
- Depends on the dimensions of the input features
- Opends on the number of examples in the training data set

Multiple Choice 1 point

Which of the following best describes the relationship between an artificial neuron and a biological neuron?

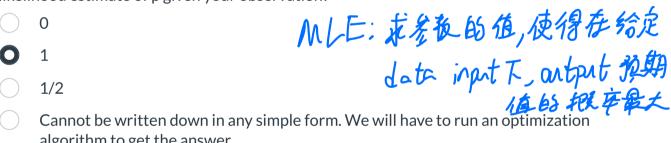
- The word "neuron" is present in both by sheer accident. They have nothing to do with each other.
- An artificial neuron is an extremely simplified version of the processing a biological neuron is capable of
- An artificial neuron is an extremely precise version of the processing a biological neuron is capable of
- Real biological neurons don't compute anything whereas artificial ones do

Which of the following is NOT a classification problem?	
	Predicting whether or not a bank customer will fail to pay the loan on time
	Assessing whether or not a credit card transaction is fraudulent
0	Predicting how long a newly admitted patient will stay at the hospital

Labeling a bird image with the scientific name of the species the bird belongs to

Multiple Choice 1 point

Consider a simple statistical model with a single parameter p which models the probability that a coin, when tossed, will land with HEADS up instead of TAILS. To get an observation, you pull a coin from your pocket and toss it once. It comes up HEADS. What is the maximum likelihood estimate of p given your observation?



algorithm to get the answer.

What is cross entropy?

- It is a neural network architecture used in classification problems
- It is a neural network architecture used in regression problems
- It is a loss function used in regression problems
- It is a loss function used in classification problems

10 Multiple Choice 1 point

> Consider a classification problem with 3 classes. Which of the following vectors CANNOT be the output of the softmax function?

- (0.8, 0.1, -0.1)
- (0.4, 0.2, 0.4)
- (0.8, 0.19, 0.01)
- (0.3, 0.3, 0.4)