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## Examples of Maximum Likelihood Estimation, Part I - Quiz

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### Question 1

1.0/1.0 point (graded)

For an i.i.d. random variable, the likelihood function is simply equal to: (Select all that apply)

☒ a. The joint PDF of the data

☐ b.  $\prod_i f(\theta|x)$

☒ c.  $\prod_i f(x|\theta)$

☐ d.  $f(x|\theta)$


☐ e.  $f(\theta|x)$




Explanation

- ▶ [Module 5: Moments of a Random Variable, Applications to Auctions, & Intro to Regression](#)
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### **Assessing and Deriving Estimators**

Finger Exercises due Nov 14, 2016  
at 05:00 IST 

### **Confidence Intervals and Hypothesis Testing**

Finger Exercises due Nov 14, 2016  
at 05:00 IST 

### **Module 7: Homework**

Homework due Nov 07, 2016 at  
05:00 IST 

The likelihood function is a reinterpretation of the joint PDF of our data or random sample. The likelihood function is the same as the joint PDF of the data, which for i.i.d. random variables is equal to  $\prod_i f(x|\theta)$

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### **Question 2**

1.0/1.0 point (graded)

Sometimes the likelihood function is computationally difficult to maximize. In this case, what could we maximize instead? (Select all that apply.)

- ☒ a. The log of the likelihood function.
- ☐ b. The inverse of the likelihood function.
- ☐ c. The sine of the likelihood function.
- ☒ d. Any monotonic transformation of the likelihood function.



### **Explanation**

Maximizing any monotonic transformation of the likelihood function will give us the same parameters as maximizing the original likelihood function. Taking the log is a monotonic transformation, so (a) is correct. In practice, we often maximize the log-likelihood rather than the likelihood because it is often

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### Discussion

**Topic:** Module 7 / Examples of Maximum Likelihood Estimation, Part I - Quiz

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