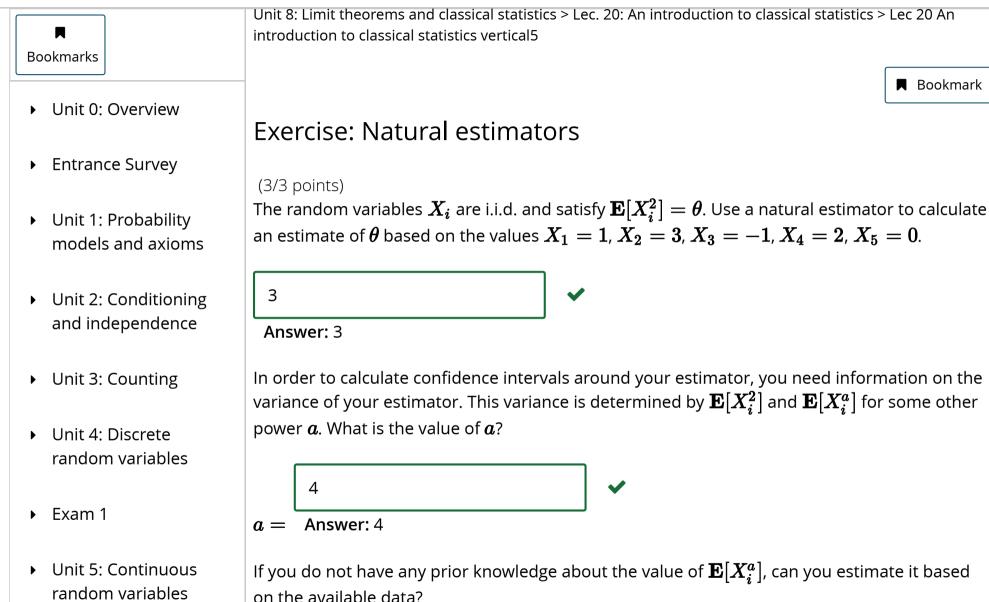


MITx: 6.041x Introduction to Probability - The Science of Uncertainty



- Unit 6: Further topics on random variables
- Unit 7: Bayesian inference
- ▶ Exam 2
- ▼ Unit 8: Limit theorems and classical statistics

Unit overview

Lec. 18: Inequalities, convergence, and the Weak Law of Large Numbers

Exercises 18 due Apr 27, 2016 at 23:59 UTC

Lec. 19: The Central Limit Theorem (CLT)

Exercises 19 due Apr 27, 2016 at 23:59 UTC

Lec. 20: An introduction to classical statistics

Exercises 20 due Apr 27, 2016 at 23:59 UTC

Yes ▼



Answer:

A natural estimator is

$$rac{1}{5}\sum_{i=1}^{5}X_{i}^{2}=rac{1}{5}(1+9+1+4+0)=3.$$

To find the variance of the estimator, you need the variance of X_i^2 . Since ${\rm var}(X_i^2)={\bf E}[X_i^4]-\left({\bf E}[X_i^2]\right)^2$, you need to know ${\bf E}[X_i^4]$. This quantity can be estimated using the natural estimator

$$\frac{1}{n}\sum_{i=1}^n X_i^4.$$

You have used 2 of 2 submissions

Solved problems

Additional theoretical material

Problem Set 8

Problem Set 8 due Apr 27, 2016 at 23:59 UTC

Unit summary

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