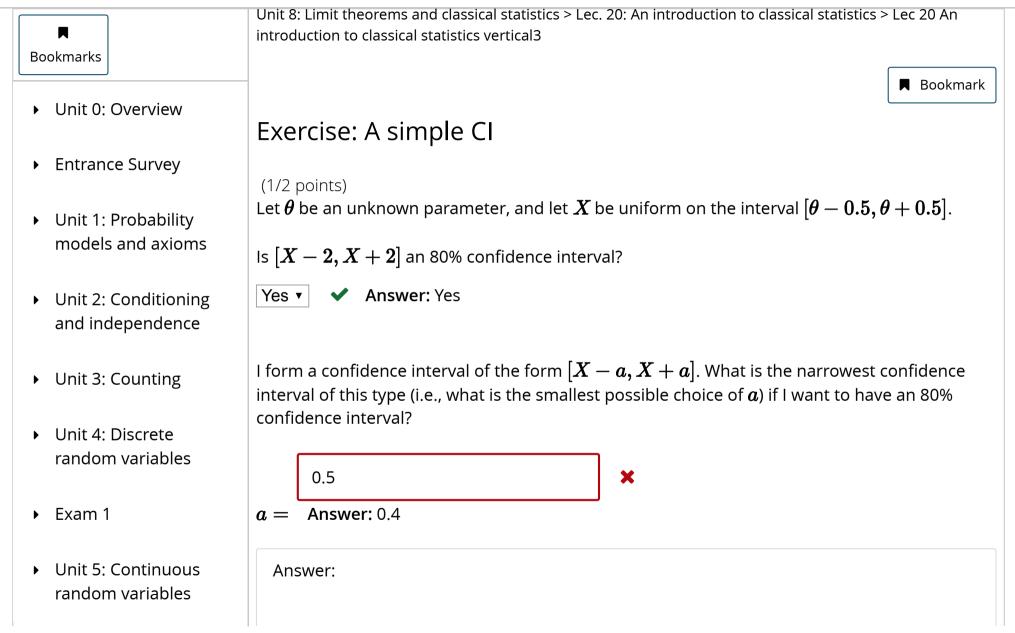


## MITx: 6.041x Introduction to Probability - The Science of Uncertainty



- 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

 $\mathbf{P}(X-2 \le \theta \le X+2) = \mathbf{P}(\theta-2 \le X \le \theta+2) = 1 \ge 0.80$ , and therefore, it is a 80% confidence interval, although, admittedly not a very intelligent one.

Note that  $\mathbf{P}(X-a \leq \theta \leq X+a) = \mathbf{P}(\theta-a \leq X \leq \theta+a) = 2a$ , for  $a \in [0,0.5]$ . In order to have an 80% confidence interval, I need  $2a \geq 0.8$  or  $a \geq 0.4$ . Therefore, the smallest possible choice of a is 0.4.

You have used 1 of 1 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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