

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



▼ Unit 0: Overview

Lec. 0: Course overview

Course introduction, objectives, and study guide

Syllabus, calendar, and grading policy

edX Tutorial

Discussion forum and collaboration guidelines

Homework mechanics and standard notation

Textbook information

- EntranceSurvey
- Unit 1: Probability models and axioms
- Unit 2: Conditioning and independence
- Unit 3: Counting
- Unit 4: Discrete random

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■ Bookmark

STANDARD NOTATION

Many exercises and problems throughout the course will ask you to provide an algebraic answer in terms of symbols. Please follow the guidelines below when entering your responses. Below your answer textbox, the system will also display, in a "pretty" format, what it has interpreted your input to be. However, this display is not perfect (for example, it does not catch all cases of missing close parentheses) so please also check your text input carefully.

- **Symbols are case-sensitive:**a and A are different make sure to use the correct case as specified in the problem
- **Parentheses:** make sure that your parentheses are properly balanced each open parenthesis should have a matching close parenthesis!
- **Elementary arithmetic operations:** use the symbols +, -, *, / for addition, subtraction, multiplication, and division, respectively
 - 1+bc-d/e should be entered as 1+b*c-d/e
- For multiplication, use * explicitly:
 - in the example above, enter b*c; do NOT enter bc
 - for 2n(n+1), enter 2*n*(n+1); do NOT enter 2n(n+1)
 - although the "pretty" display underneath your answer looks correct if you do not include *s, your answer will be marked incorrect!
- **Exponents:** use the symbol ^ to denote exponentiation
 - 2^n should be entered as 2^n
 - x^{n+1} should be entered as $x^{(n+1)}$
- **Square root:** use the string of letters sqrt, followed by enclosing what is under the square root in parentheses

variables

- ▶ Exam 1
- Unit 5: Continuous random variables
- Unit 6: Further topics on random variables
- Unit 7: Bayesian inference
- ▶ Exam 2
- Unit 8: Limit theorems and classical statistics

- $\sqrt{-1}$ should be entered as sqrt(-1)
- **Mathematical constants:** use the symbol e for the base of the natural logarithm, e; use the string of letters pi for π
 - $e^{i\pi}+1$ should be entered as e^(i*(pi))+1
- **Order of operations:** 1) parentheses, 2) exponents and roots, 3) multiplication and division, 4) addition and subtraction
 - $\frac{1}{\sqrt{2\pi}}e^{-\frac{x^2}{2}}$ should be entered as (1/sqrt(2*(pi)))*e^(-(x^2)/2)
 - a/b*c is interpreted as $\frac{a}{b} \cdot c$; enter a/(b*c) for $\frac{a}{bc}$
 - When in doubt, use additional parentheses to remove possible ambiguitites
- **Natural logarithm:** although in lectures and solved problems we will sometimes use the notation "log" (instead of "ln"), you should use the string of letters 1n, followed by the argument enclosed in parentheses
 - $\ln(2x)$ should be entered as $\ln(2x)$
- **Trigonometric functions:** use the usual 3-letter symbols to denote the standard trigonometric functions
 - $\sin(x)$ should be entered as $\sin(x)$
- Greek letters: use the Latin-character name to denote each Greek letter
 - $\lambda e^{-\lambda t}$ should be entered as lambda*e^(-lambda*t)
 - $\mu \alpha \theta$ should be entered as mu*alpha*theta
- **Factorials, permutations, combinations:** you will not need enter these for any symbolic answers; do **NOT** use ! in your answers as it will not be evaluated correctly!

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