

Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

Week 3

- Lecture 9: Expectation
- Lecture 10: Conditional Expectation
- Lecture 11: Important random variables
- Lecture 12: Continuous random variables
- Week-3 Slides: Random Variables and Expectation
- Week-3 Slides: Conditional Distribution and Expectation
- Week-3 Slides: Important Random Variables
- Feedback For Week 3
- Quiz: Week 3: Assignment 3
- Week 3: Assignment 3 solutions

Week 4

Week 5

Week 6

Week 7

Week 8

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LIVE Session

Week 3: Assignment 3

The due date for submitting this assignment has passed.

Due on 2021-09-15, 23:59 IST.

As per our records you have not submitted this assignment.

- 1) What is the expected value of the **total** number of dots appearing on the top face when we roll **two** normal six sided dice?

1 point

- 8
 4.5
 7
 7.66

No, the answer is incorrect.
Score: 0

Accepted Answers:
7

- 2) Alice rolls a magical die. This die has 2021 sides with faces $\{1, 2, \dots, 2021\}$. Also suppose that the probability that face k turns up is directly proportional to k with the **same** proportionality constant α , i.e. $P(\text{face} = k) = \alpha \cdot k$ for all k . Find the expected value of the die roll (rounded up to two decimal places)

1 point

- 1349.33
 1346.67
 1348.33
 1347.67

No, the answer is incorrect.
Score: 0

Accepted Answers:
1347.67

- 3) X is a random variable that takes values 1 or 2 with equal probability. Y is a random variable that takes values between 1 and $X + 1$ with equal probability. What is $E[X + Y]$?

1 point

- 21/8
 13/4
 21/4
 11/8

No, the answer is incorrect.
Score: 0

Accepted Answers:
13/4

- 4) Alice flips a fair coin n times (resulting in a binomial random variable X with parameters n and $1/2$). Bob flips a fair coin $n + 1$ times (resulting in a binomial distribution Y with parameters $n + 1$ and $1/2$). What is $P(X < Y)$? (Hint: Show that $P(X < Y) = P(n - X < n + 1 - Y)$)

1 point

- 1/2
 3/4
 2/3
 7/11

No, the answer is incorrect.
Score: 0

Accepted Answers:
1/2

- 5) A post office has two clerks. Alice enters the post office while 2 customers Bob and Claire are being served by the 2 clerks. She is next in line. Assume that the time a clerk spends serving a customer has the Exponential distribution with $\lambda = 5$. What is the probability that Alice is the **last** of the 3 customers to be done being served?

1 point

- 2/3
 1/2
 1/3
 3/7

No, the answer is incorrect.
Score: 0

Accepted Answers:
1/2