Assignment 5. Expectations

Your name

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Solve the following problems – each problem on a separate page – and submit to Gradescope for grading.

1 Expected value of a die [2 points]

Let random variable X be the number that comes up when a fair die is rolled. What is the expected value of X?

Show full computation.

2 Expected sum of two dice [3 points]

What is the expected value of the sum of the numbers that appear when a pair of fair dice is rolled? Show full computation.

3 The Hatcheck problem [5 points]

A new employee checks the hats of n people at a restaurant, forgetting to put claim numbers on the hats. When customers return for their hats, the checker gives them back hats chosen at random from the remaining hats. What is the expected number of hats that are returned correctly?

Show your full thought process.