**Question 3: Betting on Roulette**

A casino offers a House Special bet on roulette, which is a bet on five pockets (00, 0, 1, 2, 3) out of 38 total pockets. The bet pays out 6 to 1. In other words, a losing bet yields -$1 and a successful bet yields $6. A gambler wants to know the chance of losing money if he places 500 bets on the roulette House Special.

The following 7-part question asks you to do some calculations related to this scenario.

**Question 3a**

1.0/1.0 point (graded)

What is the expected value of the payout for one bet? correct

−0.07894737 Loading

You have used 1 of 10 attempts Some problems have options such as save, reset, hints, or show answer. These options follow the Submit button.

**Question 3b**

1.0/1.0 point (graded)

What is the standard error of the payout for one bet? correct

2.366227 Loading

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**Question 3c**

0.0/1.0 point (graded)

What is the expected value of the average payout over 500 bets?

Remember there is a difference between expected value of the average and expected value of the sum.

incorrect

39.47368 Loading

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**Question 3d**

1.0/1.0 point (graded)

What is the standard error of the average payout over 500 bets?

Remember there is a difference between the standard error of the average and standard error of the sum.

correct

0.1058209 Loading

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**Question 3e**

1.0/1.0 point (graded)

What is the expected value of the sum of 500 bets? correct

−39.47368 Loading

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**Question 3f**

1.0/1.0 point (graded)

What is the standard error of the sum of 500 bets? correct

52.91045 Loading

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**Question 3g**

1.0/1.0 point (graded)

Use pnorm with the expected value of the sum and standard error of the sum to calculate the probability of losing money over 500 bets, Pr(*X*≤0). correct

0.7721805 Loading

You have used 1 of 10 attempts