In this assignment you will further analyze the game of Plinko with respect to probability. We will begin by continuing our analysis of which slot gives the best chance at 10,000$. Have your calculators ready!

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1) Start by finding the probability of winning $10,000 if you drop a chip into slot B. ➅

# of ways to reach bottom: # of ways to reach $10,000 slot:

Probability of winning $10,000 if you drop from slot B:

|  |  |  |
| --- | --- | --- |
| Fraction | Decimal (4 decimals) | Percentage (2 decimals) |
|  |  |  |

2) Next find the probability of winning $10,000 if you drop a chip in slot C. ➅

# of ways to reach bottom: # of ways to reach $10,000 slot:

Probability of winning $10,000 if you drop from slot C:

|  |  |  |
| --- | --- | --- |
| Fraction | Decimal (4 decimals) | Percentage (2 decimals) |
|  |  |  |

3) Lastly, find the probability of winning $10,000 if you drop a chip in slot D. ➅

# of ways to reach bottom: # of ways to reach $10,000 slot:

Probability of winning $10,000 if you drop from slot C:

|  |  |  |
| --- | --- | --- |
| Fraction | Decimal (4 decimals) | Percentage (2 decimals) |
|  |  |  |

4) Summary: State the probabilities (as a percentage) of getting $10,000 from each slot.

|  |  |  |  |
| --- | --- | --- | --- |
| Slot A | Slot B | Slot C | Slot D |
|  |  |  |  |

5) If you were dropping a Plinko chip onto the game board, which slot would you drop it in? Explain your choice with complete sentences. ➁

**BONUS: Do this section if you are completely done, but it is not mandatory!**

6) If a player has 5 chips, we can determine how much money they would make on average by dropping the chips in slot D. We will begin by completing this table for slot D. Note: A sample row has been done for you with **made up numbers**.

Total # of ways to reach the bottom in slot D: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Finishing slot | # of ways to get to finishing slot (don’t forget to count the 0, 100, 500, and 1000 slots twice) | Probability of finishing in this slot (divide 1st column by # of ways to reach bottom) | # of times hit in 1,000 attempts (multiply 2nd column by 1000) | Money made from this slot (multiply 3rd column by dollar value) |
| Example (made up $200 slot) | 244 out of 2000 |  |  |  |
| 0 |  |  |  |  |
| 100 |  |  |  |  |
| 500 |  |  |  |  |
| 1,000 |  |  |  |  |
| 10,000 |  |  |  |  |
| Totals (don’t count the example!) |  |  |  |  |

b) How much total money could you make in 1,000 attempts from slot D? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) The maximum number of Plinko attempts one player can have in a game is 5. Divide your answer in part b) by 200 to determine the amount that a player can expect to make in 5 drops!