Press Your Luck

Values:

1. Whammy! (Reset $ to zero. You are allowed to pass any remaining spins now.)
2. $200
3. $300
4. $400
5. $500
6. $1000

Setup: You'll need a 6-sided die and something to write on to keep track of your score. Before starting the game, each player rolls the die to decide how many rolls they start with.

On your turn: If you have rolls remaining (that weren't passed to you) you can choose to **play** or **pass.** If you choose to **play**, roll the die and refer to *Values* above to see what you get:

- If you roll a 1, you got a whammy! Set your money to zero and subtract a roll.
- If you roll a 2-6, record your winnings and subtract a roll.

Winning: The winner is the person with the most money when all rolls have been taken.

1 player variation: If you're playing by yourself, give yourself 5 spins to start. On your turn, you can choose to **play** as usual to earn money, or **stop**, forfeiting any remaining spins. Your goal is to make the most money with your 5 spins.

Example. It's your turn and you have 4 spins remaining and $500 in your bank. You decide to play. You roll a 1, so your total becomes $0. You have 3 spins left. You play again, rolling a 4, which brings your total to $400 with 2 spins remaining. You pass them to your opponent, ending your turn.

Use this sheet (and the back) to keep track of your games!
Be sure to record any observations.

Press Your Luck Worksheet

1. What is the likelihood of rolling *once* and *not* hitting a Whammy?

2. What is the likelihood of rolling *twice* and *not* hitting a Whammy?

3. What is the likelihood of rolling 3, 4, or 5 times in a row without a Whammy? What about *n* consecutive rolls?

4. When does it become *more likely than not* that you *will hit a Whammy*?

5. You start your turn with 6 spins.
    a. If you take all 6 spins, what is the probability that you hit no whammies? Should you do this?

    b. You take your first 3 spins without hitting a whammy and have 3 spins remaining. Should you keep playing? Why or why not?

6. On an “average” spin, how much money will you make?
(*Note:* this is a bad question. Try answering it in different ways!)

7. You have 1 spin remaining and your opponent has 0. You have $2000 and your opponent has $1400. Should you play or pass? Does it matter?

Challenge Questions

A. *One spin situations.* Assume you have one spin left and your opponent has none.
   i. If you are behind by *more than $1000*, should you play or pass?
   ii. If you are ahead by *more than $1000*, should you play or pass?
   iii. In the other situations, when should you play or pass?

B. Two spin situations. You have two spins left and your opponent has none. What should you do with them, depending on the score?
(*Note:* you can try this without answering A above, but it might help!)

C. Extra spins. In the game show, some spaces have extra spins attached to them. Let's say that if you roll a 5 or 6, you get $1000 *and an extra spin*. Try this with your partner and think about the following questions.
   i. How does this change the game?
   ii. Do your answers to any previous questions change?
   (*Think about #5 and #6* especially!)

D. In 1984, Michael Larson won $110,237 on Press Your Luck ($295,806 in today's dollars) by spinning over 40 times without hitting a whammy. What is the probability of this, assuming each spin is random? Do you think it was random?