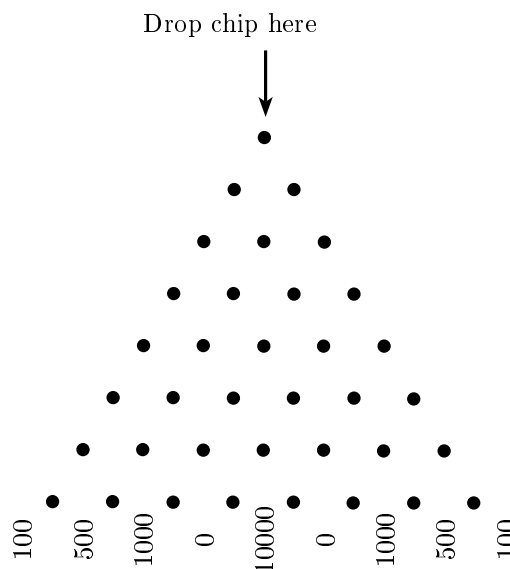


Épreuve de section européenne

The Game of Plinko

Plinko is a pricing game on the American television stupid game show *The Price Is Right*. Aired for the first time on January 3, 1983, it is played for a cash prize of up to \$50,000 and also awards prizes valued under \$100. It is frequently said to be the most popular of all the pricing games.

The contestant is given one round flat disc, called a Plinko chip, and can earn up to four more for a total of five chips. The contestant takes the chips he or she has earned up some stairs to reach the top of the Plinko board. The board is made up of a field of pegs¹, with each row offset from the previous row. Whenever the chip hits a peg, it has a 50-50 chance of going left or right to the next one. At the bottom of the board are nine slots marked with the values \$100, \$500, \$1,000, \$0, \$10,000, \$0, \$1,000, \$500, \$100 (see figure on the right, for a simplified version of the Plinko board).



Records. On December 25, 2007, a contestant won \$30,100, which is the current record for the daytime version of the show. A contestant won \$41,000 on the Million Dollar Spectacular which aired May 7, 2008.

Incident. The Plinko board is often used to promote the show. For the promotions, two fishing lines (one on each side of the board, hanging from the side down towards the center slot) are used to rig² the game, so the dropped chip would always land in the \$10,000 slot. After an advertisement for the video game was taped, the wires were mistakenly left in place for the July 22, 2008 1 :00 PM taping of *The Price is Right*. As a contestant was playing the game, three consecutive chips she dropped landed in the \$10,000 slot. As the fourth chip was being dropped, a co-producer realized that the wires were still in place and stopped the chip as it bounced down the board. The wires were removed and the entire segment was re-shot for the show. CBS Standards and Practices allowed the contestant to keep the \$30,000 won prior to the removal of the wires.

Adapted from various sources, including *Wikipedia* : <http://en.wikipedia.org/>

Questions

1. Compare the game of Plinko to the familiar game of coin tossing. How many different ways are there for the Plinko chip to reach the ground floor?
2. Find the probability of falling into the slot for a \$100 win; a \$500 win; a \$10,000 win.
3. Would you have been surprised by the contestant's luck on July 22, 2008? Explain your answer.
4. The Million Dollar Spectacular winner was lucky : How many ways are there to get \$41,000? What is the probability of winning so much?

1. Pegs : Little pieces of wood used to make the chip change direction.
 2. Rig : Manipulate the game in order to get the right issue.