

Drew Carey
The Price Is Right
7800 Beverly Blvd.
Los Angeles, CA 90036
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Math 101 Students
University of Evansville
Evansville, IN 47722

Dear Math students,

As the new host of America's favorite pricing game, I get asked all the time about the best strategies for playing our games and the chances of winning big prizes. Unfortunately, probability is not one of my strong suits. In a surprising bit of coincidence, I happened to mention this situation in passing to a consultant from International Enterprises, Inc., J.R. Doe, who recommended that I contact you for assistance.

One of the games on The Price is Right is called $\frac{1}{2}$ -Off. A contestant has an opportunity to win \$10,000 by choosing the correct box from a field of 16. To give the player a better chance to guess the correct box, there are three opportunities to eliminate half of the remaining boxes. For a complete run-down, check out the premier of the game, as hosted by my legendary predecessor, Bob Barker; Professor Twedde has gladly posted a link to the YouTube video on his website.

I would like to know the probability of choosing the correct box if there are 16, 8, 4 or 2 boxes remaining when the contestant makes her selection. If there is a 50-50 chance of winning the mini-game to eliminate half the boxes, what is the probability that a contestant would end up with 16, 8, 4 or 2 boxes? Finally, putting all this together, I'd like to know the probability that a contestant wins the game.

Since we will be taking our summer hiatus soon, please respond by Monday, April 26. I look forward to hearing from you.

Sincerely,

Drew Carey