Answer on Question #62025 – Math – Statistics and Probability

Question

At a party, you and your friend are both eying the last slice of pizza. To settle the matter, you agree on the following dice game: each of you is going to roll a die; if the highest number rolled by either one of you is a 1, 2, 3 or 4, then Player 1 wins. If the highest number is a 5 or a 6, then Player 2 wins. Assuming that you really want that last slice of pizza would you rather be Player 1 or Player 2 to maximize your chance of winning? Explain your choice.

Solution

Let's count how many total combinations are possible from rolling two dice, and in how many combinations Player 1 and Player 2 win.

Since each die has 6 values, we could get $6 \times 6 = 36$ combinations in total.

The Player 1 wins if two highest numbers rolled is a 1, 2, 3, or 4, thus we have 4 combinations for every die, or $4 \times 4 = 16$ combinations in total.

The Player 2 wins in all other combinations: $36 - 16 = 20$.

Answer: You would rather be Player 2 because he gets more winning combinations than Player 1 (20 against 16), and thus has a better chance of winning.