

Written Assignment # 5

Your paper should have the following information on it.

- Your name
- Your student ID number
- Which section you are in: 02 MWF, or 04 TTh

Specifications for Grading

To earn a passing mark, your assignment must:

- be typed, and no more than three pages in length. Diagrams may be hand drawn.
- address the writing prompts below.
- conform to reasonable standards for grammar, spelling, and usage of the English language with minimal errors. (You may consider seeking help on writing from the Writing Center in the Academic Learning Center. <http://www.uni.edu/unialc/writing-center>)
- be turned in by 3pm on Friday, February 17.

All of the tasks below have to do with a single set-up: a weird game of chance I just invented. Here is how it works:

There are two players, call them Player A and Player B. Player A has two ten-sided dice. Player B has a single twenty-sided die. Have you seen these before? Here is a picture:



(a) A pair of ten-sided dice



(b) A twenty-sided die

Figure 1: Dice for this assignment

They behave a lot like the usual six-sided kind, except that there are more sides. The ten-sided dice are labeled with numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. The twenty-sided die is labeled with the numbers 1 through 20. The players roll the dice and compare numbers. Player A gets to add the two numbers she rolled. Player B just has to keep the one number he rolls.

Task 1. We can think about a single run of this game as a “trial” of a chance situation. Here the trial involves rolling three dice. Make a decision tree which will help you think about this game.

Task 2. Use the decision tree to figure out what is the probability that Player A scores an “11” and Player B scores a ‘5’. Explain how the decision tree helps you.

Task 3. Analyze this game carefully, and decide which player has an advantage, if either. Explain how you know your answer is the correct one.