Quiz 7

April 30, 2019

Instructions: Do all the problems on **both sides** of this paper. Show all your work.

1. [**3 points each**] You are given 25 to 4 odds against rolling a die sum of 8 with a pair of dice: this means that you win $25 if you succeed in rolling an 8, and you lose $4 if you fail.

   (a) Find the expected value of the game (to you).

   (b) Would you expect to win or lose money if you played the game just once? Explain.

   (c) According to the *Law of Large Numbers*, would you expect to win or lose money if you played the game 10,000 times? Explain.

   (d) If you played the game 10,000 times, about how much money would you expect to win/lose?

2. [**3 points each**]

(a) How many 4-digit codes (repetitions allowed) can be formed using the characters $I\,L\,U\,V\,M\,A\,T\,H$?

(b) How many 4-digit codes can be formed using the above characters without repetitions?

(c) Each of these seven warriors is eligible to serve on a 3-person committee: Axel (A), Blaze (B), Chun-Li (C), Dhalsim (D), Eddy Gordo (E), Forest Law (F), and Jeffry McWild (J). How many different committees can be formed?