



Lewis & Clark College

Department of Mathematical Sciences

Problem of the Week #9

(Spring 2018)

When we roll two *fair* dice, the eleven possible sums are the integers $2, 3, \dots, 12$ with probabilities $1/36, 2/36, 3/36, 4/36, 5/36, 6/36, 5/36, 4/36, 3/36, 2/36, 1/36$, respectively. Is it possible to load the dice in such a way that these eleven outcomes are equally probable? Please mathematically justify your answer.

[Remark. “Loading” the dice means assigning probabilities to each of the six sides coming up. The two dice do not have to be loaded in the same way.]

- Solvers should include their name, address, and status at the College. Solutions can be mailed to MSC 110 via campus mail or placed in Yung-Pin Chen’s mailbox in the Math Department Office. Solutions to the above *Problem of the Week* should be received by 5:00 p.m. Monday, April 2, 2018.
- We did not receive a satisfactory solution for *Problem of the Week #8*, except a solution provided by the problem contributor.