HW 3

STAT 461 FALL 2026

SOA exam P problems 5, 6, 10, 12, 16.

Problem 1. Roll two dice and consider three events: A = first roll even, B = second roll even, C = sum of rolls even. Find whether these three events are pairwise independent and whether they are jointly independent.

Problem 2. Roll two dice and find the conditional probability that:

- the first roll is 5 or 6 given that the sum is 10, 11, or 12.
- the sum is 10, 11, or 12 given that the first roll is 5 or 6.
- the first roll is 5 or 6 given that the sum is 9 or less.

Problem 3. A stock price rises (with probability 60%) or falls (with probability 40%) each day by 1, independently of the other days. Find the probability that after two days, the stock price will end up at the same level as at the start of these two days.