

**2001 DISCRETE MATHEMATICS
HOMEWORK 7
DUE 2026 APRIL 26**

PROBLEM 1 (S9, 3 POINTS)

Consider the situation where you flip a fair coin two times, then you roll a 4-sided die, recording the result each time.

- a. Write out the state space for this experiment and compute its cardinality.
- b. Write out the members of the event E where you flip heads at least once and roll an odd number.
- c. What is the probability of E ?

PROBLEM 2 (S9, 2 POINTS)

Suppose you roll four 6-sided dice. What is the probability that the sum of your four rolls is 6 or greater?

PROBLEM 3 (S9, 2 POINTS)

Suppose you roll a 10-sided die and a 12-sided die. What is the probability that your roll on the 10-sided die is even or your roll on the 12-sided die is a multiple of 3?

PROBLEM 4 (S9, 3 POINTS)

Suppose you roll four 6-sided dice. What is the probability that exactly three of your rolls are the same number, given that the sum of your four rolls is 10?