Math 123-01
Fall 2025
Dr. Lily Yen

Quiz 5

Show all your work

Name: _____
Number: _____
Signature: _____
Score: ___/10

Problem 1: Answer each question to two decimal place accuracy when appropriate. If an exact answer is possible, expressed as a fraction, you may leave your answer as a fraction.

a. The chance of a sunny day tomorrow is 35 %. What is the chance of not getting a sunny day tomorrow? $1+5=2+4=3+3=4+2=5+1$ so $\boxed{65\,\%}$

b. When you flip a fair coin twice, what is the probability of not getting Heads?

TT so $\frac{1}{4} = \boxed{\frac{1}{4}}$

c. How many outcomes are in the sample space for rolling three cubic dice?

$6^3 = \boxed{216}$

Score: /3

Problem 2: During the Remembrance Day long weekend, Dad constructed a spinner with five equal sectors, each labelled with a different dollar amount: \$1, \$2, \$5, \$10, \$20, for Hamlet and Samlette. Assume that the pointer never lies on a border, answer the following questions. Get partial marks by constructing the sample space as a table or drawing a probability tree in each case.

a. Find the probability of getting less than \$11 after one spin.

$$P(X < 11) = \frac{4}{5}$$

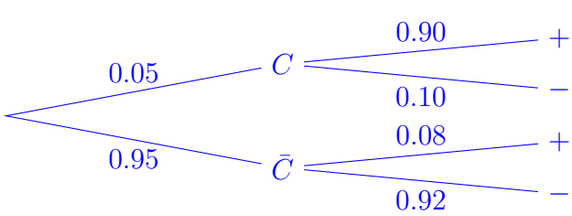
b. Find the probability of getting more than \$20 after two spins.

$$P(X_1 + X_2 > 20) = \frac{1}{5} + 4 \times \frac{1}{5} \times \frac{1}{5} = \frac{9}{25} = 36.00\,\%$$

Score: /3

Problem 3: Assume that 5 % of international visitors arriving at the Vancouver International Airport are sick with the latest variant of Covid. Suppose a Covid test correctly identifies a visitor sick with Covid 90 % of the time. Also assume that the test falsely identifies a healthy visitor as sick with Covid 8 % of the time. If an international visitor tests positive, what is the probability that the visitor is sick with Covid?

Draw a probability tree as part of your steps.



$$P(C \mid +) = \frac{P(C \cap +)}{P(+)} = \frac{0.05 \times 0.90}{0.95 \times 0.08 + 0.05 \times 0.90} \approx 37.19\,\%.$$

Score: /4