Math 123-01
Fall 2025
Dr. Lily Yen

# Quiz Five

Show all your work

Name: _____
Number: _____
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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. How many outcomes are in the sample space for rolling three cubic dice?

$6^3 =$ **216**

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

$HH$, so $\frac{1}{4} =$ **$\frac{1}{4}$**

c. The chance of a sunny day tomorrow is 15 %. What is the chance of not getting a sunny day tomorrow? $1+5=2+4=3+3=4+2=5+1$ so **85 %**

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 more than \$3 after one spin.

$$P(X > 3) = \frac{3}{5}$$

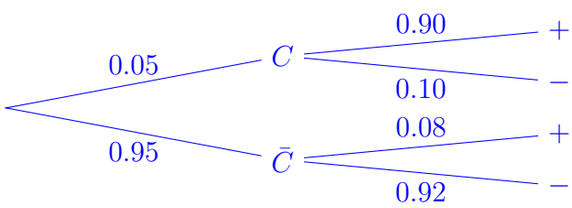
b. Find the probability of getting less than \$10 after two spins.

$$P(X_1 + X_2 < 10) = \frac{3}{5} \times \frac{3}{5} - \frac{1}{25} = \frac{8}{25} = 32.00\,\%$$

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 actually not sick with Covid?

Draw a probability tree as part of your steps.




$$P(\bar{C} \mid +) = \frac{P(\bar{C} \cap +)}{P(+)} = \frac{0.95 \times 0.08}{0.95 \times 0.08 + 0.05 \times 0.90} \approx 62.81\,\%.$$

Score: /4