# 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. Suppose the probability of rain tomorrow is $80\%$. What would be the probability of no rain tomorrow?

$$20\%$$

b. Dad constructed a spinner with five equal sectors, each labelled with a different snack: Aero, HiChew, Mars Bar, Chips, Twix. Assume that the pointer never lies on a border, what is the probability that Samlette does not get Chips after two spins?

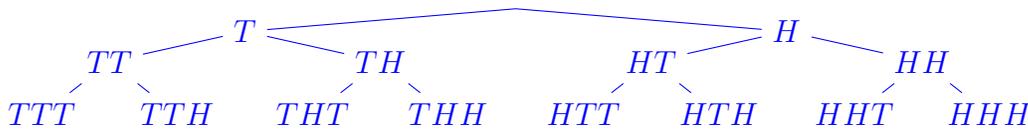$$\frac{4}{5} \times \frac{4}{5} = \frac{16}{25}$$

c. When Katharina rolls two cubic dice (D6), what is the probability of getting a total of less than 6?

$\frac{10}{36}$ so $\dfrac{5}{18}$

Score: ___/3

**Problem 2**: Hamlet and Samlette found three fair coins to flip. answer the following questions.

a. Draw a probability tree for flipping three coins.



b. Find the probability of getting at least one Heads from flipping three coins.

Anything but $TTT$, so

$$1 - \frac{1}{8} = \frac{7}{8}$$

Score: ___/3

**Problem 3**: Assume that $13\%$ 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 $91\%$ of the time. Also assume that the test falsely identifies a healthy visitor as sick with Covid $6\%$ of the time. If an international visitor tests negative, what is the probability that the visitor is actually sick with Covid?

Draw a probability tree as part of your steps.
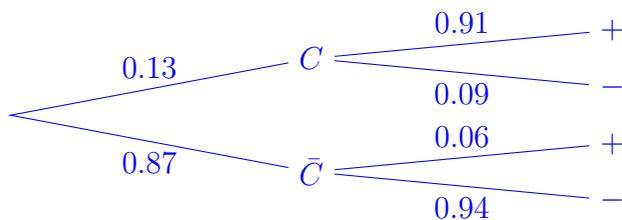


$$P(C \mid -) = \frac{P(C \cap -)}{P(-)} = \frac{0.13 \times 0.09}{0.13 \times 0.09 + 0.87 \times 0.94} \approx 1.41\%.$$

Score: ___/4