

# Assignment 5

Show all your work

Name: \_\_\_\_\_  
Number: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Score: \_\_\_\_/20

**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. If the chance of rain tomorrow is 27%, find the chance of no rain tomorrow.

- b. If James draws a single card from a deck of 52 cards, what is the probability that he does not draw a diamond?

- c. When you flip a fair coin twice, what is the probability of getting at least one tail?

- d. Suppose a red cubic die and a black cubic die are rolled, find the probability of getting a sum of 3 or less.

- e. A survey is conducted among students and faculty at Capilano University regarding the use of artificial intelligence for students. If a faculty is randomly selected, what is the probability that the faculty is against the use of artificial intelligence for students?

Capilano University Survey

	For A1	Against A1	Total
Students	437	111	
Faculty	52	107	
Total			

Score: \_\_\_\_/5

**Problem 2:** The morning after Halloween, Dad constructed a spinner with six equal sectors, each labelled with a different snack: Aero, HiChew, Mars, Chips, Juice, Twix, for Hamlet and Samlet. Assume that the pointer never lies on a border, answer the following questions.

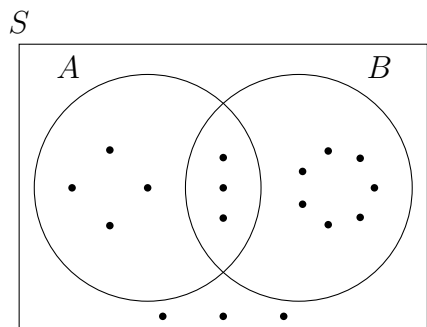
- a. Find the probability of getting an Aero or a HiChew after one spin.

- b. Find the probability of getting no Mars bar after two spins.

- c. Find the probability of getting at least one pack of Chips after three spins.

Score: \_\_\_\_/5

**Problem 3:** Dad drew a big rectangle representing a sample space containing Event A and Event B. Assume that the outcomes (as dots) were all equally likely, give a fraction for each probability question.



a.  $P(\bar{A})$

b.  $P(A \cup B)$

c.  $P(\bar{A} \cap B)$

d.  $P(A|B)$

e. Are  $A$  and  $B$  mutually exclusive?

Score:     /5

**Problem 4:** Assume that 15% 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 95% of the time. Also assume that the test falsely identifies a healthy visitor as sick with Covid 7% 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.

Score:     /5