

Assignment 5
Show all your work

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

Problem 1: A survey is conducted among the faculty at Capilano University and the faculty at UBC regarding the use of artificial intelligence (AI) in teaching. Answer the following questions according to the table below. Fill the table as part of your steps.

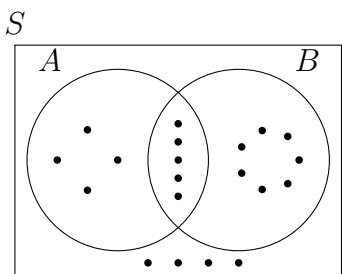
- a. If a person is randomly selected from the survey, what is the probability that the person is against using AI in teaching?
- b. If a CapU faculty is randomly selected, what is the probability that the CapU faculty is for the use of artificial intelligence in teaching?

University Survey			
	For AI	Against AI	Total
CapU Faculty	435	214	
UBC Faculty	2355	5827	
Total			

a. $\frac{214+5827}{435+214+2355+5827} \approx 68.41\%$
b. $\frac{435}{435+214} \approx 67.03\%$

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Problem 2: 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. $P(A \cap B)$

$\frac{5}{20} = \frac{1}{4}$

b. $P(B \mid \overline{A})$

$\frac{7}{11}$

c. Are A and B mutually exclusive?

No

Since Events A and B have a non-empty overlap, they are not mutually exclusive.

Score: ____/3

Problem 3: Assume that 3% of international visitors arriving at the Vancouver International Airport are sick with the latest variant of avian flu. Suppose an avian flu test correctly identifies a visitor sick with the flu 80% of the time. Also assume that the test falsely identifies a healthy visitor as sick with the avian flu 10% of the time. If an international visitor tests negative, what is the probability that the visitor is actually sick with avian flu?

Draw a probability tree as part of your steps.

Tree shown in class. Start the branching with avian flu (AF) or no avian flu before the second branching on test results.

$$P(AF \mid -) = \frac{P(AF \cap -)}{P(-)} = \frac{0.03 \times 0.20}{0.03 \times 0.20 + 0.97 \times 0.90} \approx 0.68\%,$$

Score: ____/4