

Mini-Assignment

Due Jan 29 at 11:59pm **Points** 8 **Questions** 4
Available until Jan 30 at 3am **Time Limit** None
Allowed Attempts 2

This quiz was locked Jan 30 at 3am.

Attempt History

	Attempt	Time	Score
LATEST	<u>Attempt 1</u>	less than 1 minute	8 out of 8

Score for this attempt: **8** out of 8

Submitted Jan 20 at 6:42pm

This attempt took less than 1 minute.

Question 1

2 / 2 pts

Let the entire space be all positive integers smaller than 10. Given $A = \{1, 2, 3, 4, 5\}$, what is A^c (the complement of A)?

- ☐ $\{1, 2, 3, 4, 5\}$
- ☐ Φ (the empty set)
- ☐ $\{1, 2, 3, 4, 5, 6, 7, 8, 9\}$
- ☒ $\{6, 7, 8, 9\}$

Correct!

Question 2

2 / 2 pts

The table below shows the purchase history of 10 customers from a set of zip codes that bought organic tea or organic coffee. Using Bayes' Rule, what is the probability that a person who lives in the 44005 zip code and bought organic tea will likely buy the organic coffee?

CustomerID	Zipcode	Bought Organic Coffee	Bought Organic Tea
1	44005	Yes	Yes
2	44001	No	No
3	44001	Yes	Yes
4	44005	No	No
5	44003	Yes	No
6	44005	No	Yes
7	44005	No	No
8	44001	No	No
9	44005	Yes	Yes
10	44003	Yes	Yes

☐ 0.5

☒ 0.67

☐ 0.24

☐ 0.3

Correct!

Question 3

2 / 2 pts

If variable x and z are statistically independent. Which of the following is correct? (select all that apply)

Correct!

☒ $\text{Var}(x+z) = \text{Var}(x) + \text{Var}(z)$

☐ $\text{Var}(x+z) \approx \text{Var}(x) + \text{Var}(z)$

☐ $E(x+z) \approx E(x) + E(z)$

Correct!

☒ $E(x+z) = E(x) + E(z)$

Question 4**2 / 2 pts**

Consider a wireless cell with four channels. Each channel is in one of two states: busy and available. Both states are equally probable and each channel is independent of any other channel. Define a random variable X to be the number of channels in the busy state. What is the value of $E[X]$?

Correct!

☒ 2

☐ 0.2

☐ 1/16

☐ 33/16

Quiz Score: 8 out of 8