Quiz 1 (Probability)

Due 26 Aug at 3:10   **Points** 31   **Questions** 17
Available 26 Aug at 2:30 - 26 Aug at 3:10 40 minutes   **Time limit** 38 Minutes

Instructions

This is the first quiz of the course. This will be on probability.

This quiz was locked 26 Aug at 3:10.

Attempt history

	Attempt	**Time**	**Score**
LATEST	**Attempt 1**	38 minutes	29 out of 31

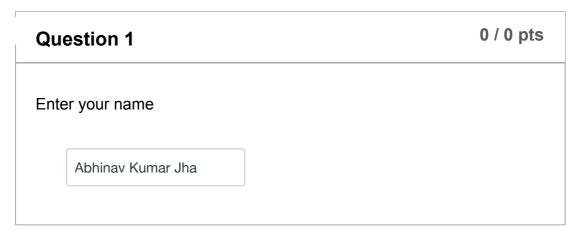⚠ Correct answers are hidden.

Score for this quiz: **29** out of 31
Submitted 26 Aug at 3:09
This attempt took 38 minutes.

Incorrect	**Question 1**	**0 / 0 pts**

Enter your name

    Abhinav Kumar Jha

Incorrect	**Question 2**	**0 / 0 pts**

Enter your roll number

    15001

Question 3

2 / 2 pts

Suppose A is an event and B is another event such that $B \subseteq A^C$. If P(A) = 0.3, then which of the following statements is true?

○ P(B) is greater than or equal to 0.7

◉ P(B) is less than or equal to 0.7

○ P(B) is less than or equal to 0.3

○ P(B) is greater than or equal to 0.3

Partial

Question 4

3 / 3 pts

Suppose A and B are two mutually exclusive events with P(A) = 0.3 and P(B) = 0.4. Then P(A|B) = [0.0] and $P(A|B^C)$ =

[0.5] (enter your answers in numerical form)

Answer 1:

0.0

Answer 2:

0.5

Question 5

2 / 2 pts

Suppose there is a biased coin that falls heads with probability 0.7 and tails with probability 0.3. We toss this coin two times. What is the probability that we get exactly one head in the two tosses? (enter your answer in numerical form, to two decimal places)

0.42

Incorrect

Question 6

0 / 2 pts

Suppose A, B, C are three mutually exclusive events such that P(A) = 0.1, P(B) = 0.2, and P(C) = 0.3. Then what is P(A $\cup$ B $\cup$ C)? (enter your answer in numerical form)
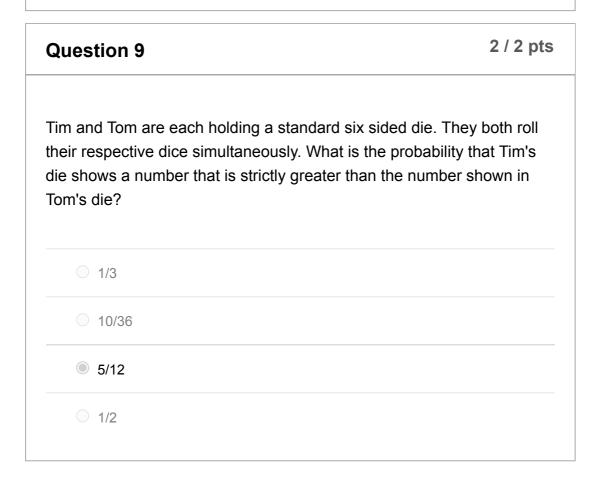
0.496

Question 7

2 / 2 pts

Suppose A and B are events such that P(A) = 0.3, P(B) = 0.2 and P(A $\cap$ B) = 0.1. Then what is P(A^c $\cap$ B^C)?
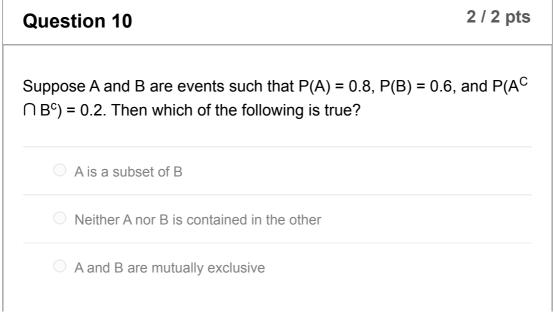
○ 0.7

○ 0.4

○ 0.5

○ Cannot be determined from the information given

◉ 0.6

Question 8   2 / 2 pts

Suppose A and B are independent events such that P(A) = 0.2 and P(B) = 0.5. Then what is $P(A \cup B)$?

> 0.6

Question 9   2 / 2 pts

Tim and Tom are each holding a standard six sided die. They both roll their respective dice simultaneously. What is the probability that Tim's die shows a number that is strictly greater than the number shown in Tom's die?

- ○ 1/3
- ○ 10/36
- ◉ 5/12
- ○ 1/2

Question 10   2 / 2 pts

Suppose A and B are events such that P(A) = 0.8, P(B) = 0.6, and $P(A^C \cap B^c) = 0.2$. Then which of the following is true?

- ○ A is a subset of B
- ○ Neither A nor B is contained in the other
- ○ A and B are mutually exclusive

○ None of the choices can be inferred

◉ B is a subset of A

Question 11   2 / 2 pts

Suppose you roll two fair dice and look at the sum of the two results. The probability of getting a value of at most (less than or equal to) 4 is given by
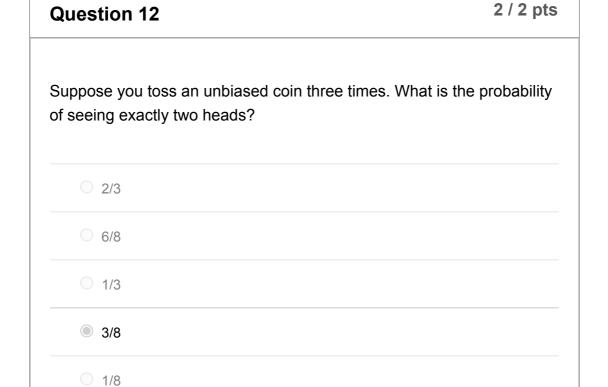
○ 1/12

○ 10/36

◉ 1/6

○ 3/11

○ 1/5

Question 12   2 / 2 pts

Suppose you toss an unbiased coin three times. What is the probability of seeing exactly two heads?

○ 2/3

○ 6/8

○ 1/3

◉ 3/8

○ 1/8

Question 13	2 / 2 pts

Suppose A is an event with $P(A) = 0.3$. What is $P(A \cup A^C)$?

○ 0.3

○ 0.21

○ Cannot be determined from the information given.

○ 0.7

◉ 1

Question 14	2 / 2 pts

Suppose the probability of a random person of the population having covid is 0.1. Given that the person has covid, the probability of the person having cough is 0.9. Given that the person does not have covid, the probability of having cough is 0.01.

Suppose a random person from the population has cough. What is the probability that he/she has covid?

○ 1/11

○ 99/100

○ 9/10

◉ 10/11

○ 1/2

Question 15

2 / 2 pts

Let A be an event, and let P(A) denote the probability of the event A. Which of the following options is correct?

- ○ P(A) is at least 0 but has no upper bound (unbounded)

- ◉ P(A) is at least 0 and at most 1

- ○ P(A) has neither an upper bound nor a lower bound

- ○ P(A) is at most 1 but has no lower bound (unbounded)

Question 16

2 / 2 pts

Let A and B be two events, such that P(A) = 1 and P(B) > 0. Which of the following is true?

- ○ A and B are nether independent nor mutually exclusive

- ○ A and B are mutually exclusive but not independent

- ◉ A and B are independent, but not mutually exclusive

- ○ Cannot conclude any of the choices from the information given.

- ○ A and B are independent and mutually exclusive

Question 17

2 / 2 pts

A standard deck of playing cards has 52 cards -- 4 suits (clubs, hearts, diamonds and spades) and 13 cards (A, 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K) of each suit. Suppose we take two cards from a shuffled deck

without replacement. What is the probability that the two chosen cards form a pair (two cards with the same value, but of different suits -- e.g., two A's, two J's, two 7's etc.)?

○ 1/13

◉ 1/17

○ 3/4

○ 1/4

○ 1/3

Quiz score: **29** out of 31