

Question 4

Correct

Mark 3 out of 3

Flag question

You are dealt a 3-card hand from a standard 52-card deck. There are 12 face cards (Jack, Queen, King) in the deck. What is the probability that your 3-card hand consists entirely of face cards?

- ☒ a. $(12 \text{ choose } 3) / (52 \text{ choose } 3)$
- ☐ b. $(12/52)^3$
- ☐ c. $(12 \text{ choose } 3) / 52^3$
- ☐ d. none
- ☐ e. $(12 \times 11 \times 10) / (52 \times 51 \times 50)$



The correct answer is: $(12 \text{ choose } 3) / (52 \text{ choose } 3)$

Question **5**

Correct

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🚩 Flag question

You roll a fair six-sided die once. What is the probability that the roll results in an odd number?

- ☐ a. $1/6$
- ☒ b. $1/2$
- ☐ c. $1/3$
- ☐ d. $2/3$
- ☐ e. none



The correct answer is: $1/2$

Question 7

Correct

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Flag question

If events C and D are known to be independent events, are their complements, C^c and D^c , also independent?

- ☐ a. none
- ☐ b. Only if $P[C] = P[D]$.
- ☒ c. Yes, always.
- ☐ d. Only if C and D are mutually exclusive.
- ☐ e. No, never.



The correct answer is: Yes, always.

Question **1**

Correct

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🚩 Flag question

You flip a biased coin twice. On any given flip, the probability of getting Heads (H) is $\frac{1}{3}$. The flips are independent. What is the probability of getting the sequence Tails then Heads (TH)?

- ☒ a. $\frac{2}{9}$
- ☐ b. none
- ☐ c. $\frac{4}{9}$
- ☐ d. $\frac{1}{3}$
- ☐ e. $\frac{1}{9}$



The correct answer is: $\frac{2}{9}$

Question **2**

Correct

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🚩 Flag question

From a group of 4 distinct people, how many different committees consisting of exactly 2 people can be formed?

- ☐ a. 8
- ☐ b. none
- ☒ c. 6
- ☐ d. 4
- ☐ e. 12



The correct answer is: 6

Question 3

Correct

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Flag question

Mobile phone calls involve handoffs (H_0 : zero, H_1 : one, H_2 : >one) and are Long (L) or Brief (B). The joint probabilities are: $P(L, H_0)=0.1$, $P(L, H_1)=0.1$, $P(L, H_2)=0.2$; $P(B, H_0)=0.4$, $P(B, H_1)=0.1$, $P(B, H_2)=0.1$. What is $P[H_0]$ (the probability a randomly selected call makes no handoffs)?

- ☐ a. 0.4
- ☐ b. none
- ☐ c. 0.1
- ☒ d. 0.5
- ☐ e. 0.6



The correct answer is: 0.5

Question 8

Correct

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🚩 Flag question

Consider a language containing 4 distinct letters: A, B, C, D. How many different three-letter words can be formed if each letter can appear only once in each word (i.e., no repetition of letters within a word)?

- ☐ a. 12
- ☐ b. 4
- ☒ c. 24
- ☐ d. 64
- ☐ e. none



The correct answer is: 24

Question 9

Correct

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Flag question

A student's score on a 10-point quiz is equally likely to be any integer from 0 to 10 (inclusive, resulting in 11 distinct possibilities). A score less than 4 is an F. What is the probability the student gets an F?

- ☐ a. $3/10$
- ☒ b. $4/11$
- ☐ c. $3/11$
- ☐ d. $4/10$
- ☐ e. none



The correct answer is: $4/11$

Question **10**

Correct

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🚩 Flag question

You have two biased coins, Coin A ($P[\text{Heads}] = 1/4$) and Coin B ($P[\text{Heads}] = 3/4$). You are not sure which is which, so you choose one coin at random ($P[A \text{ chosen}] = P[B \text{ chosen}] = 1/2$) and flip it. The flip results in Heads. What is the probability that the coin you chose was Coin B?

- ☐ a. none
- ☐ b. $1/4$
- ☒ c. $3/4$
- ☐ d. $3/5$
- ☐ e. $1/2$



The correct answer is: $3/4$

Finish review

Computer programs are classified by length as Big (B) or Little (L), and by execution time as Fast (F) or Slow (W). The following probabilities are known: $P[\text{Little and Fast, LF}] = 0.5$, $P[\text{Big and Fast, BF}] = 0.2$, $P[\text{Big and Slow, BW}] = 0.2$. Assuming these are the only categories (so probabilities sum to 1), what is $P[L]$, the probability a randomly selected program is Little?

- ☐ a. 0.8
- ☐ b. 0.5
- ☒ c. 0.6
- ☐ d. none
- ☐ e. 0.7



The correct answer is: 0.6

You shuffle a standard 52-card deck and turn over the first card. How many distinct outcomes are in the event that the first card drawn is a King?

- ☐ a. 1
- ☐ b. none
- ☐ c. 52
- ☐ d. 13
- ☒ e. 4



The correct answer is: 4

Question 3

Correct

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🚩 Flag question

A student's score on a 10-point quiz is equally likely to be any integer from 0 to 10 (inclusive, resulting in 11 distinct possibilities). A score less than 4 is an F. What is the probability the student gets an F?

- ☐ a. $3/10$
- ☐ b. none
- ☐ c. $4/10$
- ☒ d. $4/11$
- ☐ e. $3/11$



The correct answer is: $4/11$

Question 2

Correct

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🚩 Flag question

A system consists of 2 components connected in series. Component 1 works with a probability $P[W1]=0.9$. Component 2 works with a probability $P[W2]=0.8$. The components work independently. What is the probability that the entire system works?

- ☐ a. 0.9
- ☐ b. 0.98
- ☐ c. none
- ☒ d. 0.72
- ☐ e. 0.8



The correct answer is: 0.72

Question 4

Correct

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🚩 Flag question

Cellular phones are classified as Handheld (H) or Mobile (M). Calls are classified by speed as Fast (F) or Slow (W). Given $P[F]=0.5$, $P[\text{Handheld and Fast, HF}]=0.2$, $P[\text{Mobile and Slow, MW}]=0.1$. What is $P[MF]$, the probability a call is Mobile AND Fast?

- ☐ a. none
- ☐ b. 0.1
- ☐ c. 0.2
- ☒ d. 0.3
- ☐ e. 0.4



The correct answer is: 0.3

Question 6

Incorrect

Mark 0 out of 3

 Flag question

Consider an experiment that observes Wi-Fi transmission characteristics. The speed can be high (h), medium (m), or low (l), and the signal length can be for a mouse click (c) or a tweet (t). An observation is a two-letter word representing speed then length (e.g., hm for high-speed mouse click). Which of the following represents the complete sample space S for this experiment?

- ☐ a. none
- ☐ b. $S = \{h, m, l\} \text{ union } \{c, t\}$
- ☒ c. $S = \{hc, mt, lc, ht, mc, lt\}$ ✗
- ☐ d. $S = \{(h,c), (h,t), (m,c), (m,t), (l,c), (l,t)\}$
- ☐ e. $S = \{h, m, l, c, t\}$

The correct answer is: $S = \{(h,c), (h,t), (m,c), (m,t), (l,c), (l,t)\}$

Question 1

Correct

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🚩 Flag question

In an experiment observing Wi-Fi transmission speed (h: high, m: medium, l: low) and signal length (c: mouse click, t: tweet), let A1 be the event "medium speed connection." Which set of outcomes corresponds to event A1?

- ☐ a. none
- ☐ b. $\{(m,c)\}$
- ☐ c. $\{m\}$
- ☐ d. $\{(h,m), (m,m), (l,m)\}$
- ☒ e. $\{(m,c), (m,t)\}$



The correct answer is: $\{(m,c), (m,t)\}$

Question 9

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Events A and B form a partition of the sample space S (meaning they are mutually exclusive and their union is S, so $P[A] + P[B] = 1$). If $P[A] = 2P[B]$, what is the probability of event A, $P[A]$?

- ☐ a. none
- ☒ b. $2/3$
- ☐ c. $3/4$
- ☐ d. $1/3$
- ☐ e. $1/2$



The correct answer is: $2/3$