Unit 2 - Week 1: Introduction to probability and Random Variable

Assignment 1

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment. Due on 2018-08-22, 23:59 IST.

1) Suppose $S = \{0, 1, 2\}$. Which of the following collections are fields? 1 point

- $\{S, \Phi\}$
- $\\{\{0\}, \{1\}, \{2\}, S, \Phi\}$
- $\\{\{0\}, \{1, 2\}, S, \Phi\}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\\{\{0\}, \{1, 2\}, S, \Phi\}$

2) Consider the sequence of subsets in $\mathbb{R}$ given by

$A_n = \left( 1, 2 + \frac{1}{n} \right)$. Find $\bigcup_{n=1}^{3} A_n$, $\bigcap_{n=1}^{3} A_n$, $\bigcup_{n=1}^{\infty} A_n$ and $\bigcap_{n=1}^{\infty} A_n$ respectively 1 point

- $(1, 3), (1, \frac{7}{3}), (1, 3)$
- $(1, 3), (1, \frac{7}{3}), (1, 3)$ and $(1, 2)$
- $(1, 3), (1, \frac{7}{3}), (1, 3)$ and $(1, 2)$
- $(1, 3), (1, \frac{7}{3}), (1, 3)$ and $(1, 2)$

No, the answer is incorrect.
Score: 0
Find \( P(A \cup B) \), \( P(A \cup B \cup C) \) and \( P(A \cap B \cap C^c) \) respectively.

No, the answer is incorrect.
Score: 0
Accepted Answers:
\( \frac{1}{2}, \frac{7}{8}, \frac{1}{5} \)

4) Consider a probability space \( (S, \mathcal{F}, P) \) and an event \( B \in \mathcal{F} \). Suppose \( A_1, A_2 \) and \( A_3 \) are disjoint events such that \( A_1 \cup A_2 \cup A_3 = S \). If \( P(A_1 \cap B) = P(A_2 \cap B) = P(A_3 \cap B) = \frac{1}{4} \) and \( P(A_1) = P(A_2) = \frac{1}{3} \), find \( P(B), P(A_2/B) \) and \( P(B/A_3) \) respectively.

No, the answer is incorrect.
Score: 0
Accepted Answers:
\( \frac{1}{4}, \frac{1}{3}, \frac{3}{4} \)

You were allowed to submit this assignment only once.