Started on Friday, 20 October 2023, 10:52 AM

State Finished

Completed on Friday, 20 October 2023, 11:22 AM

Time taken 30 mins 1 sec

Grade 6.50 out of 10.00 (**65**%)

Question 1

Correct

Mark 1.00 out of 1.00

Which of the following statements is correct?

- \bigcirc a. $\sum_{n=1}^{\infty} \cos n$ is divergent and the series $\sum_{n=1}^{\infty} (\cos n)/n^2$ is divergent.
- \bigcirc b. $\sum_{n=1}^{\infty} \cos n$ is convergent and the series $\sum_{n=1}^{\infty} (\cos n)/n^2$ is divergent.
- \odot c. $\sum_{n=1}^{\infty} \cos n$ is divergent and the series $\sum_{n=1}^{\infty} (\cos n)/n^2$ is convergent.
- \bigcirc d. $\sum_{n=1}^{\infty} \cos n$ is convergent and the series $\sum_{n=1}^{\infty} (\cos n)/n^2$ is convergent.

The correct answer is:

 $\sum_{n=1}^{\infty} \cos n$ is divergent and the series $\sum_{n=1}^{\infty} (\cos n)/n^2$ is convergent.

Question 2

Correct

Mark 1.00 out of 1.00

. Evaluate $\lim_{x\to 0} \frac{\log x}{\cot x}$

Answer:

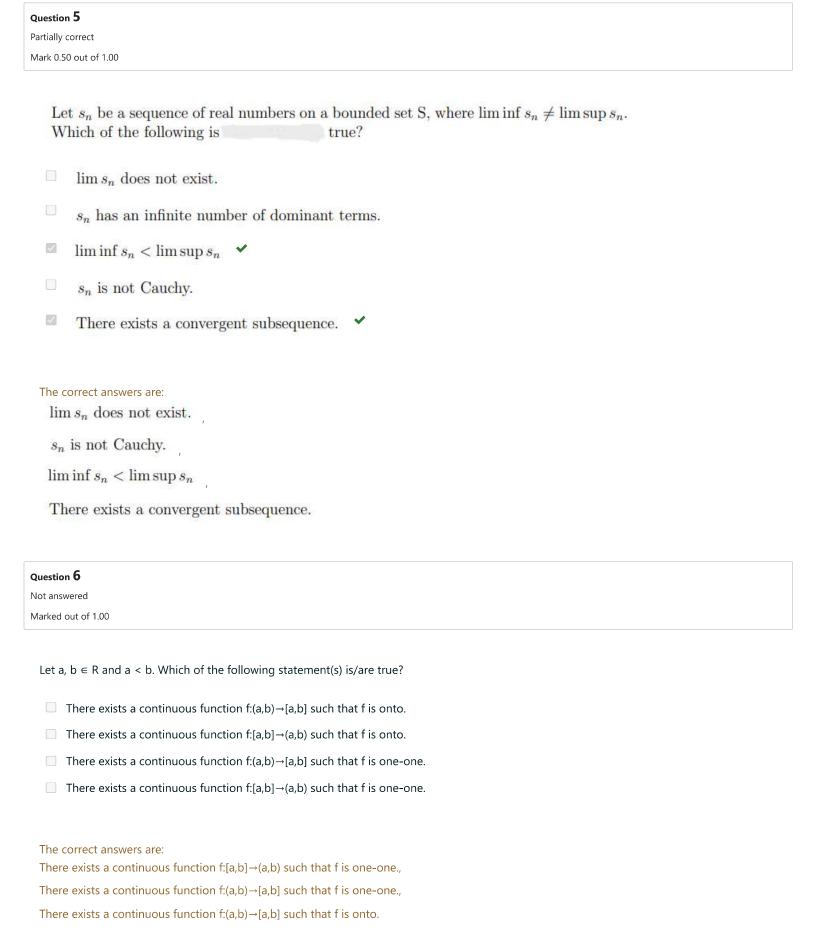
The correct answer is: 0

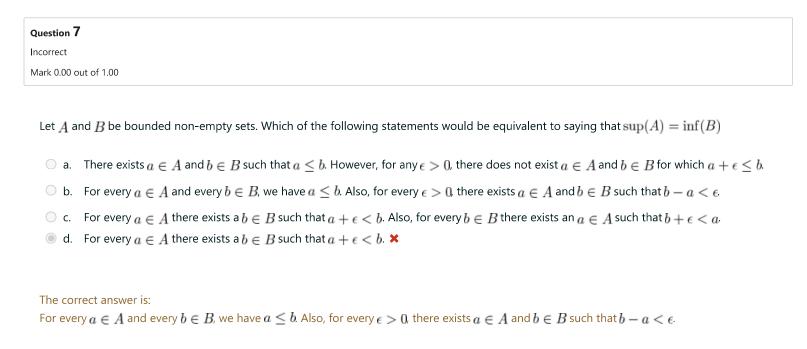
Mark 1.00 out of 1.00	
Find $\lim (xe^{-nx})$ for $x \in \mathbb{R}, x \ge 0$.	
Answer: 0	
The correct answer is: 0	
Question 4	
Correct	
Mark 1.00 out of 1.00	
Find $\lim (nx/(1+n^2x^2))$ for all $x \in \mathbb{R}$.	

The correct answer is: 0

Answer: 0

Question 3
Correct





Question 8

Correct

Mark 1.00 out of 1.00

What is the cardinality of the set of real numbers in the closed interval [0, 1]?

- Countable
- Finite
- ✓ Uncountable ✓
- Countably infinite

The correct answer is: Uncountable

Question 9

Correct

Mark 1.00 out of 1.00

The value of
$$\lim_{x\to\infty} \left(1+\frac{1}{x}\right)^x$$

Answer: 2.71

The correct answer is: 2.72

Question 10 Incorrect

Mark 0.00 out of 1.00

Let A and B be bounded non-empty sets. Which of the following statements would be equivalent to saying that $\inf(A) \leq \inf(B)$?

- \bigcirc a. For every $a \in A$ and every $b \in B$, we have $a \leq b$.
- \bigcirc b. For every $b \in B$ and $\epsilon > 0$ there exists an $a \in A$ such that a < b + epsilon.
- \bigcirc c. There exists $a \in A$ and $b \in B$ such that a < b
- $\ \ \,$ $\ \ \,$ $\ \ \,$ $\ \ \,$ d. For every $a\in A$ there exists a $b\in B$ such that $a\leq b$

The correct answer is:

For every $b \in B$ and $\epsilon > 0$ there exists an $a \in A$ such that a < b + epsilon.