MAT251: General Calculus II The Course Graded Exam - Unit 7 Review Test Submission: Graded Exam - Unit 7

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Course	MAT251: General Calculus II	
Test	Graded Exam - Unit 7	
Status	Completed	
Score	112.5 out of 150 points	
Time Elaps	ed 26 minutes out of 1 hour.	

Question 1

Consider the sequence

$$a_n = \frac{n}{n^2 + 1}$$

Which of the following are true for this sequence? $\{a_n\}$ is convergent. Selected Answer:

Question 2

 $\frac{3}{5} - \frac{3}{6} + \frac{3}{7} - \frac{3}{8} + \dots$ is convergent. Selected Answer:

Question 3

7.5 out of 7.5 points

7.5 out of 7.5 points

Given that
$$a_n > 0$$
 and $b_n > 0$ for all *n*, and that $\lim_{n \to \infty} \frac{a_n}{b_n} = L$, where $L \neq 0$ and $L \neq \infty$.

Decide whether each of the following are possible according to the Limit Comparison

Test. $\sum_{n=1}^{\infty} a_n$ converges and $\sum_{n=1}^{\infty} b_n$ diverges. Selected Answer:

Question 4

A series of the form $a + ar + ar^2 + ... + ar^{n-1} + ...$ is called a ______ series.

Selected Answer:

7.5 out of 7.5 points

7.5 out of 7.5 points

1 of 4

Question 5



0 out of 7.5 points

Given that $a_n > 0$ and $b_n > 0$ for all *n*, and that $\lim_{n \to \infty} \frac{a_n}{b_n} = L$, where $L \neq 0$ and $L \neq \infty$.

Decide whether each of the following are possible according to the Limit Comparison

Both
$$\sum_{n=1}^{\infty} a_n$$
 and $\sum_{n=1}^{\infty} b_n$ converge.
Selected Answer:

Question 6

Find the Maclaurin series for $f(x) = \frac{x}{1 + \frac{x}{2}}$. Selected Answer:

Question 7

Question 8

If |r| < 1, the series $a + ar + ar^2 + ... + ar^{n-1} + ...$ converges to Selected Answer:

7.5 out of 7.5 points

7.5 out of 7.5 points

The Taylor polynomial of degree *n* approximating f(x) near x = a is given by:

Selected Answer:

Question 97.5 out of 7.5 pointsIf $\sum_{n=1}^{\infty} |a_n|$ is convergent, then is $\sum_{n=1}^{\infty} a_n$ also convergent.
Selected Answer:0 out of 7.5 pointsQuestion 100 out of 7.5 pointsA series whose even-numbrered terms are positive and odd-numbered terms are negative, or vice versa, is called an _______ series.
Selected Answer:0 out of 7.5 pointsQuestion 117.5 out of 7.5 pointsFind the sum of the series $-\frac{4}{3} + \frac{4}{3^2} - \frac{4}{3^3} + \frac{4}{3^4} - \dots$ if it exists. Write "diverges" otherwise.

Selected Answer:

Question 12

0 out of 7.5 points

Consider the sequence

$$a_n = \frac{3^n}{n!}$$

Which of the following are true about $\{a_n\}$? $\{a_n\}$ is monotonic. Selected Answer:

Question 13

7.5 out of 7.5 points

7.5 out of 7.5 points

0 out of 7.5 points

A sequence $\{a_n\}$ converges if

Selected Answer:

Question 14

Given that $0 < a_n \le b_n$ for all *n*, decide whether each of the following statements is true according to the Direct Comparison Test.

If $\sum_{n=1}^{\infty} b_n$ diverges, then $\sum_{n=1}^{\infty} a_n$ diverges. Selected Answer:

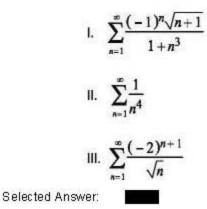
Question 15

Find the 50th term of the following sequence. Round your answer to the nearest .001 .

$$-\frac{1}{4}, \frac{2}{9}, -\frac{3}{16}, \frac{4}{25}$$

Selected Answer:

For which of the following series is the Ratio Test inconclusive (that is, it fails to give a definite answer)?



Question 19

Consider the sequence

 $\{\ln(n+1) - \ln(n)\}$

Does the sequence converge or diverge? If it converges, give its limit. Otherwise write "diverges". Selected Answer:

Question 20

Given that $0 < a_n \le b_n$ for all *n*, decide whether each of the following statements is true according to the Direct Comparison Test.

If
$$\sum_{n=1}^{\infty} b_n$$
 converges, then $\sum_{n=1}^{\infty} a_n$ converges.
Selected Answer:

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7.5 out of 7.5 points

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