

para nosotros. I start at 11. Good luck.

@Apr 30, 2021 12:10 PM , turn in work.

Template for me to use: ignore this part;

https://www.overleaf.com/learn/latex/Integrals,_sums_and_limits

$\sum_{n=1}^{\infty} 2^{-n}$

$\sum_{n=1}^{\infty} 2^{-n}$

$\lim_{x \rightarrow \infty}$

$\lim_{x \rightarrow \infty}$

$\oint_V f(s) ds$

$\oint_V f(s) ds$

$\sum_{n=0}^{\infty} \sum_{n=0}^0$

Example question

$$f(x) = 4/(7-x)$$

$$f(x) = \sum_{n=0}^{\infty} \frac{4}{7} \left(\frac{x}{7}\right)^n$$

Q1. Determine the convergence or divergence of the sequence with the given nth term. If the sequence converges, find its limit.

$$a_n = (1 + 1/n)^n$$

The sequence diverges. (answer since n is not equal to zero)

The sequence converges to e

The sequence converges to 0.

The sequence converges to 1.

Q2.

Consider the series $\sum_{n=1}^{\infty} 1/(3n-1)^2$ The sum of the series is $\pi^2/9$ Find the sum of the series $\sum_{n=4}^{\infty} 1/(3n-1)^2$

.7910

0.8266

0.7766

0.8066

0.7866

Q3. Use the direct comparison Test to determine the convergence or divergence of the series

$$\sum_{n=1}^{\infty} \frac{9^n}{8^n - 1}$$

Compare with series $\sum_{n=1}^{\infty} 9^n/8^n$ converges

Compare with series $\sum_{n=1}^{\infty} 9^n/8^n$ diverges. (answer)

Q4. Use the Integral Test to determine the convergence or divergence of the series

$$\sum_{n=2}^{\infty} \frac{1}{n \sqrt{\ln n}}$$

A. Integral Test inconclusive

B. converges

C. diverges (answer)

Q5. Determine the convergence or divergence of the series. Use the p-series test if possible

$$\sum_{n=1}^{\infty} \frac{7}{n \cdot \sqrt[9]{n}}$$

"Using P- series test the series converges , the P-value is 7 "

Q6.

Find dy/dx at $t=2$, *given the parametric equations*

$$x=t^2-t+5 \text{ and } y=t^3-6t+5$$

answer $\rightarrow 2$

Q7.

Find all values of x for which the series

$$\sum_{n=0}^{\infty} 3 \left(\frac{x-2}{3} \right)^n$$

converges.

(Write the interval of convergence)

$$-1 \leq x \leq 5$$

$$-6 < x < 7$$

$$-2 < x < 2$$

$$-3 < x < 3$$

$$-1 < x < 5$$

Q8.

Find the sum of the series if it converges. Otherwise write diverges.

$$\sum_{n=0}^{\infty} 5 \left(-\frac{3}{2} \right)^n$$

Diverges

Q9.

Find a geometric power series for the function $f(x) = 25/(5-x)$ centered at 0.

$$\sum_{n=0}^{\infty} \left(\frac{x}{5} \right)^n$$

$$\sum_{n=0}^{\infty} \frac{x^n}{(5n-1)}$$

$$\sum_{n=0}^{\infty} \frac{x^n}{5^{n+1}}$$

$$\sum_{n=0}^{\infty} 25(x/5)^n$$

Q10.

Write the corresponding rectangular equation by eliminating the parameter

$$x = 8 + 4 \sin t$$

$$y = -2 + 2 \cos t$$

A. $(x-8)^2/(16) + (y-2)^2/4 = 1$

B. $(x+8)^2/(16) + (y-2)^2/4 = 1$

C. $(x-8)^2/(16) + (y+2)^2/4 = 1$

D. $(x+8)^2/(16) + (y+2)^2/4 = 1$

Q11.

Find the third degree Taylor polynomial centered at $c=2$ for the function.

$$f(x) = \ln x$$

$$\ln 2 - \frac{1}{2}(x-2) + \frac{1}{8}(x-2)^2 - \frac{1}{24}(x-2)^3$$

$$\ln 2 + \frac{1}{2}(x-2) - \frac{1}{8}(x-2)^2 + \frac{1}{24}(x-2)^3$$

$$\ln 2 - 2(x-2) + 8(x-2)^2 - 24(x-2)^3$$

$$\ln 2 - \frac{1}{2}(x-2) - \frac{1}{8}(x-2)^2 - \frac{1}{24}(x-2)^3$$

Q12. Write the repeating decimal 0.9111111. as a geometric series

$$\sum_{n=0}^{\infty} 0.91(1/100)^n$$

$$\sum_{n=1}^{\infty} (91/100)(1/100)^{n-1}$$

$$\sum_{n=1}^{\infty} (0.91)^n$$

$$\sum_{n=0}^{\infty} (91/100)(1/100)^n$$

Q13.

Determine whether the series $\sum_{n=0}^{\infty} \frac{\cos(n\pi)}{n+6}$ converges conditionally or absolutely, or Diverges.

$$\sum_{n=0}^{\infty} \frac{\cos(n\pi)}{n+6}$$

The series converges absolutely.

The series converges conditionally but does not converge absolutely.

The series converges absolutely but does not converge conditionally.

The series diverges.

Q14 . Determine the convergence or divergence of the series $\sum_{n=1}^{\infty} \frac{2n}{(3n+1)^2}$. Identify the test used.

$$\sum_{n=1}^{\infty} \frac{2n}{(3n+1)^2}$$

converges using ratio test

converges; p-series

converges to $2/3$, limit comparison test

converges; Integral Test

diverges; (nth Term Test for Divergence)

Q15. Write as a telescoping series. Write S_n and then find the sum of the series.

$$\sum_{n=1}^{\infty} \frac{14}{(n+6)(n+8)}$$

1. $15/28$

2. $15/56$

3. $29/56$

4. $27/56$

Q16. Determine the convergence or divergence of the series

$$\sum_{n=1}^{\infty} \frac{15}{56} \left(\frac{2}{3}\right)^n$$

$$\frac{15}{56}$$

$$\frac{29}{56}$$

$$\frac{27}{56}$$

converges

diverges

inconclusive

Q17 Write the first three terms of the sequence of partial sums.

$$\sum_{n=1}^{\infty} 5/(-4)^{(n-1)}$$

A . 5,15/4,65/16

5,-5/4,5/16,5,-54,516

5,254,105165,254,10516

5,254,12516

18. Determine the convergence or divergence of the series

$$\sum_{n=1}^{\infty} (2n+6/5n+1)^n$$

Converges

diverges

Q19.

Find the radius of convergence of the power series

$$\sum_{n=0}^{\infty} ((x-3)^n)/(n!)$$

∞

3

1

0