

Test#5 Math102-sec 1 – 5 – 9

Net Time Allowed: 35 minutes

Name:

ID #:

section:

Exercise1:

Is the Series $\sum_{n=1}^{\infty} \frac{\cos\left(\frac{n}{5}\right)}{5^n}$ Conditionally convergent? Justify your answer.

Exercise2:

Is the Series $\sum_{n=1}^{\infty} \frac{(-7)^{n-1}}{\sqrt{n}}$ Absolutely convergent? Justify your answer.
(Hint: use the Ratio test.)

Exercise3:

Find the Radius and interval of convergence for $\sum_{n=1}^{\infty} \frac{n(x+2)^n}{3^{n+1}}$.

Exercise4:

Find the sum of the series:

a)- $\sum_{n=0}^{\infty} (-1)^n \frac{x^{4n}}{n!}$.

b)- $\sum_{n=0}^{\infty} \frac{2^n}{7^n n!}$.

Exercise5:

Write out the form of the partial fraction decomposition of $\frac{x-5}{x(x^3+x)^2}$. Do not determine the numerical values of the coefficients.

Exercise6:

Test the convergence of the series $\sum_{n=4}^{\infty} \frac{9}{n-3}$.

Exercise7:

Determine whether the integral $I = \int_0^3 \frac{dx}{x\sqrt{x}}$ is improper or not and test the convergence of I .