

King Saud University
College of Sciences, Department of Mathematics
1443/Semester-2/Math-203/Quiz-1

Max. Marks: 10

Max. Time: 40 Min

Question 1 [Marks: 3] :

Determine whether the sequence $\left\{ \frac{\sin^2(3n+1)}{6^n} \right\}$ converges or diverges.

Question 2 [Marks: 3]:

Prove that the following series converges, and find its sum:

$$\sum_{n=0}^{\infty} \frac{1}{(n+4)(n+5)}$$

Question 3 [Marks: 4]:

Find the interval of convergence and radius of convergence of the power series

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