Question 1

Determine, using the ratio test, whether the following series converges or diverges. Carefully justify each conclusion.

a

b

Question 2

Find the interval of convergence of the series

Question 3

Consider the function defined by

for what value(s) of is differentiable at every

Question 4

Determine if the following integral is divergent or convergent. Find the value of the integral if it converges

Question 5

Let and let the partition

of [1, 2]. Calculate the lower sum and the uppser sum of this partition. Using the upper and lower sums computed above, show that f is Riemann integrable on [1, 2] and hence compute