

Student: Arfaz Hossain
Date: 03/14/22

Instructor: Muhammad Awais
Course: Math 101 A04 Spring 2022

Assignment: HW-7 [Sections 10.7 & 10.8]

6. For the series below, **(a)** find the series' radius and interval of convergence. For what values of x does the series converge **(b)** absolutely, **(c)** conditionally?

$$\sum_{n=1}^{\infty} \frac{9^n x^{2n}}{n}$$

(a) The radius of convergence is $\frac{1}{3}$.

(Type an integer or a simplified fraction.)

Determine the interval of convergence. Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

☒ **A.** The interval of convergence is $-\frac{1}{3} < x < \frac{1}{3}$.

(Type a compound inequality. Simplify your answer. Use integers or fractions for any numbers in the expression.)

☐ **B.** The series converges only at $x =$. (Type an integer or a simplified fraction.)

☐ **C.** The series converges for all values of x .

(b) For what values of x does the series converge absolutely?

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

☒ **A.** The series converges absolutely for $-\frac{1}{3} < x < \frac{1}{3}$.

(Type a compound inequality. Simplify your answer. Use integers or fractions for any numbers in the expression.)

☐ **B.** The series converges absolutely at $x =$. (Type an integer or a simplified fraction.)

☐ **C.** The series converges absolutely for all values of x .

(c) For what values of x does the series converge conditionally?

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

☐ **A.** The series converges conditionally for .
(Type a compound inequality. Simplify your answer. Use integers or fractions for any numbers in the expression.)

☐ **B.** The series converges conditionally at $x =$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

☒ **C.** There is no value of x for which the series converges conditionally.