Student: Arfaz Hossain	**Instructor:** Muhammad Awais	**Assignment:** HW-7 [Sections 10.7 &
Date: 03/14/22	**Course:** Math 101 A04 Spring 2022	10.8]

8. 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?

$$\sum_{n=1}^{\infty} \left(3 + (-1)^n\right) \cdot (x+7)^{n-1}$$

(a) The radius of convergence is   1   .
(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 $-8 < x < -6$.
   (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 $-8 < x < -6$.
   (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.