

6. [10 points] Consider the power series

$$\sum_{n=1}^{\infty} \frac{(-1)^n}{n 5^n} (x+3)^n.$$

- a. [2 points] What is the center of the interval of convergence of this power series?

**Answer:** The center is at  $x =$  \_\_\_\_\_

**For parts b and c below, show every step of any calculations and fully justify your answer with careful reasoning.**

- b. [3 points] Find the radius of convergence of this power series.

**Answer:** Radius of Convergence: \_\_\_\_\_

- c. [5 points] Find the interval of convergence for this power series.

**Answer:** Interval of Convergence: \_\_\_\_\_