# § 11.8 Power Series Homework.

Do the following problems from Calculus by Anton etal $8^{th}$ ed.

**63.** Prove: If the interval of convergence of the series $\sum_{k=0}^{\infty} c_k (x - x_0)^k$ is $(x_0 - R, x_0 + R]$, then the series converges conditionally at $x_0 + R$.

For the next 6 problems, as we did in class, find

- the center
- the radius of convergence
- the interval of convergence

and make the "number line chart" indicating where the power series is absolutely convergent, conditionally convergent, and divergent.

**29.** $\sum_{k=1}^{\infty} \frac{5^k}{k^2} x^k$

**35.** $\sum_{k=0}^{\infty} (-1)^k \frac{x^{2k+1}}{(2k+1)!}$

**41.** $\sum_{k=1}^{\infty} (-1)^{k+1} \frac{(x+1)^k}{k}$

**43.** $\sum_{k=0}^{\infty} \left(\frac{3}{4}\right)^k (x+5)^k$

**44.** $\sum_{k=1}^{\infty} \frac{(2k+1)!}{k^3} (x-2)^k$

**48.** $\sum_{k=0}^{\infty} \frac{(2x-3)^k}{4^{2k}}$