

2836  
Pf: Want

$$|a_j x^j| \leq \lambda^j < 1 \text{ for } \text{conver}$$

So, taking  $j^{\text{th}}$  roots,

$$\text{Need } |x| |a_j|^{\frac{1}{j}} \leq \lambda < 1$$

$$\text{Need } |x| \limsup_{j \rightarrow \infty} |a_j|^{\frac{1}{j}} < 1$$

$$|x| < \frac{1}{\lim_{j \rightarrow \infty} |a_j|^{\frac{1}{j}}} \equiv R$$

$$\text{If } |x| > R, \quad \lim_{j \rightarrow \infty} |x^j a_j| = \infty$$