$$\sum 3^n x^{3n}$$

$$\frac{1}{R} = \lim_{n \to \infty} |3^n|^{\frac{1}{3n}} = (3)^{\frac{1}{3}}$$

$$\boxed{R = (3)^{-\frac{1}{3}}}$$

at $x = (3)^{-\frac{1}{3}}$

$$\sum 3^n x^{3n} = \sum 3^n \left((3)^{-\frac{1}{3}}\right)^{3n} = \sum 3^n \times (3)^{-n} = \sum 1$$

divergent

at $x = -(3)^{-\frac{1}{3}}$

$$\sum 3^n \left[(-3)^{-\frac{1}{3}}\right]^{3n} \Rightarrow \sum 3^n (-3)^{-n} \Rightarrow \sum (-1)^n$$

Divergent (By leibnitz test)

Thus interval of convergence = $\left(-(3)^{-\frac{1}{3}}, (3)^{\frac{1}{3}}\right)$