

FACT

For any power series one of the following is true:

- 1) There is a positive number R called the radius of convergence such that the series converges absolutely if $|x - c| < R$ and diverges if $|x - c| > R$.
- 2) The series converges absolutely for all x -values (we say $R = \infty$).
- 3) The series converges only for $x = c$ (we say $R = 0$).

Comments:

Convergence or divergence at $|x - c| = R$ is analyzed case by case.

The set of x -values for which the series converges is called the interval of convergence.