A function is said to be *analytic* at $x = c$ if, in an open interval centered at c, the function has a power series representation with a positive radius of convergence, and the power series converges to the function.

- Polynomials are analytic everywhere.

- Rational functions are analytic wherever the denominator is nonzero.

- If f and g are analytic at $x = c$, then so are

  1. $f + g$

  2. $f \cdot g$

  3. f/g, provided $g(c) \neq 0$

The point c is called an *ordinary point* of the equation $y'' + p(x)y' + q(x)y = 0$ if p and q are analytic at $x = c$. If c is not an ordinary point, it is called a *singular point*.