

The Taylor Series — are called Power Series because the terms are comprised of coefficients in front of increasing powers of  $x$ .

A simple generalized expression for a power series,

$$g(x) = a + bx + cx^2 + dx^3 \dots$$

In the Taylor Series each added term increases the accuracy of the approximation.

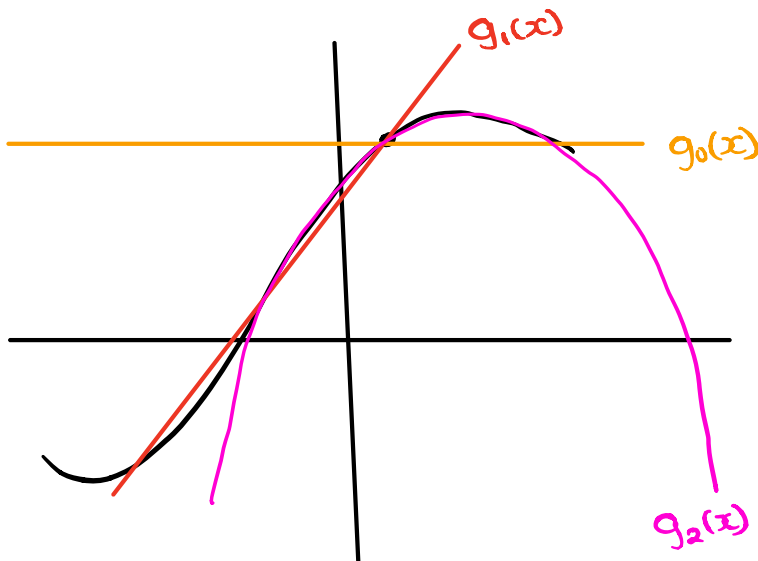
The number of terms, including the highest order used, is the order of the approximation.

$$g_0(x) = a$$

$$g_1(x) = a + bx$$

$$g_2(x) = a + bx + cx^2$$

$$g_3(x) = a + bx + cx^2 + dx^3$$



The idea of adding additional terms to a power series to better approximate the underlying function is demonstrated in the plot to the left.