

Definition of Taylor and Maclaurin Series

If a function f has derivatives of all orders at $x = c$, then the series

$$\sum_{n=0}^{\infty} \frac{f^{(n)}(c)}{n!} (x - c)^n = f(c) + f'(c)(x - c) + \dots + \frac{f^{(n)}(c)}{n!} (x - c)^n + \dots$$

is called the **Taylor series for f at c** . Moreover, if $c = 0$, then the series is the **Maclaurin series for f** .