

If we have a function  $f(x)$ , what do we call the following power series?

$$\sum_{k=0}^{\infty} \frac{f^{(k)}(0)}{k!} x^k = f(0) + \frac{f'(0)}{1!} x + \frac{f''(0)}{2!} x^2 + \dots$$

If we have a sequence of numbers  $a_0, a_1, a_2, \dots$ , what do we call each of the following power series?

$$\sum_{k=0}^{\infty} a_k x^k = a_0 + a_1 x + a_2 x^2 + \dots, \text{ and}$$

$$\sum_{k=0}^{\infty} \frac{a_k}{k!} x^k = a_0 + \frac{a_1}{1!} x + \frac{a_2}{2!} x^2 + \dots$$