

Math 17B

Kouba

An Example of a function and its Taylor Polynomials

EXAMPLE : The first four Taylor Polynomials for $f(x) = e^x$ are

$$P_0(x; 0) = 1 ,$$

$$P_1(x; 0) = 1 + x ,$$

$$P_2(x; 0) = 1 + x + \frac{x^2}{2!} ,$$

$$P_3(x; 0) = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} , \dots$$

All are plotted on the same graph below.

