$$y'(x) = 1 + x + y^2$$

$$y(0) = 1$$

$$y_L(x) = \sum_{i=0}^{L} \frac{y^{(i)}(0)}{i!} x^i$$

$$y^{(0)}(0) = y(0) = 1$$

$$y'(0) = (1 + x + y^2(x))\Big|_{x=0} = 1 + 0 + 1 = 2$$

$$y''(0) = (1 + 2yy')\Big|_{x=0} = 1 + 2 \cdot 1 \cdot 2 = 5$$

$$y'''(0) = (2(y')^2 + 2yy'')\Big|_{x=0} = 2 \cdot 4 + 2 \cdot 1 \cdot 5 = 18 \dots$$

$$y(x) - y_L(x) = \frac{y^{(L+1)}(\xi)}{(L+1)!}(x - x_0)^{L+1} \leq \varepsilon$$