8. (***Javier and Zhihua***) Apply three steps of Newton's method to $e^x + x^2 - 4 = 0$ with starting point $x = 1$.

Newton's method: $x_{n+1} = x_n - \dfrac{f(x_n)}{f'(x_n)}$

$f(x) = e^x + x^2 - 4$

$f'(x) = e^x + 2x$

$$x_0 = 1 - \frac{e-3}{e+2} = \frac{e+2-e+3}{e+2} = \frac{5}{e+2}$$

$$x_1 = \frac{5}{e+2} - \frac{e^{\left(\frac{5}{e+2}\right)} + \frac{25}{(e+2)^2} - 4}{e^{\left(\frac{5}{e+2}\right)} + \frac{10}{e+2}}$$

$$x_2 = x_1 - \frac{e^{x_1} + x_1^2 - 4}{e^{x_1} + 2x_1}$$ (not writing all that)