

Math 451

Q's how to problem solve with technology

① No ans. in "back of book"

② **Play** with simple probs.

Ex $[\text{length}(p) - 1, -1 : 0] \cdot x^p$

p are the coeff. of a poly

$$x^2 + 2x + 2$$

$$p = [1 \ 2 \ 2]$$

$$p^* = [2 \ 2 \ 0]$$

$$\frac{d}{dx} [x^2 + 2x + 2] = 2x + 2 + 0$$

Use paper + Math \rightarrow computational tools

③ Play \rightarrow understanding the problem

④ Solve in small parts

⑤ Test a whole soln on **known** probs.

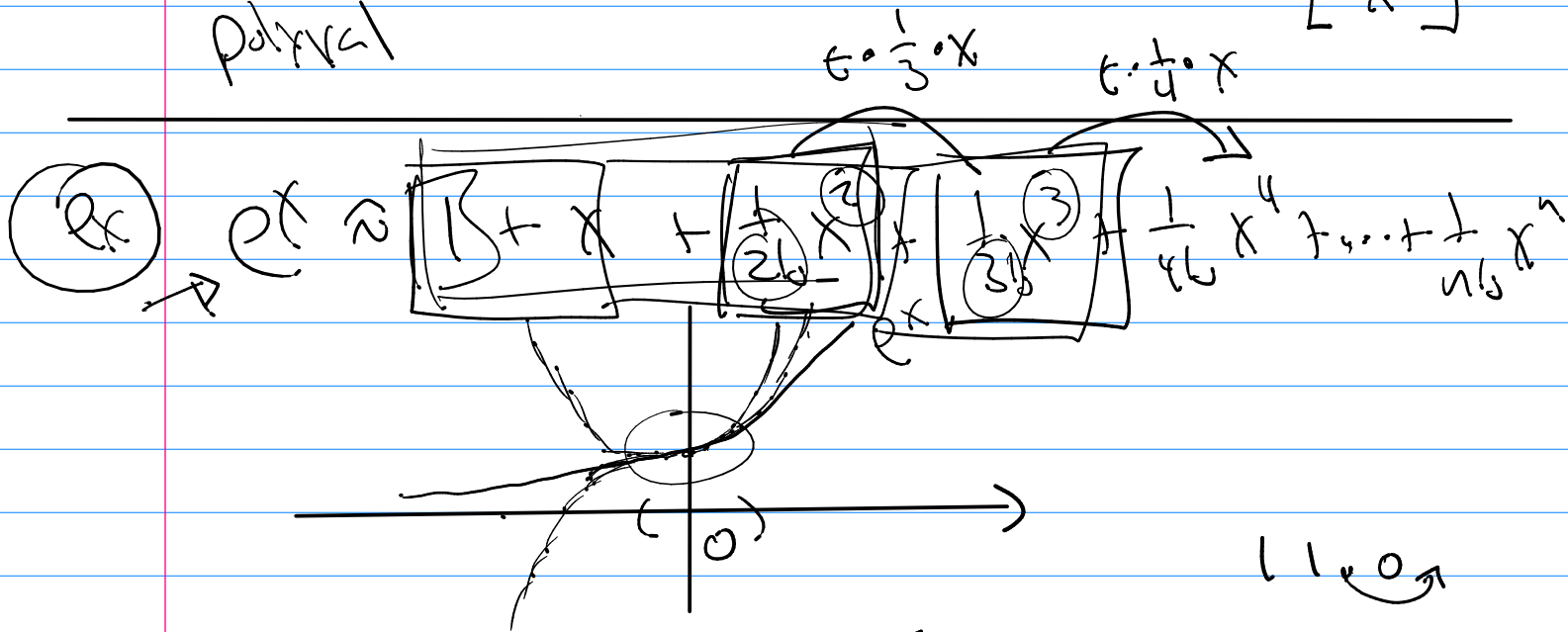
$$(x - 10^{-4})(x - 10^3) = 0$$

$$\boxed{1}x^2 - \boxed{(10^3 + 10^{-4})}x + \boxed{10^4} = 0$$

$$p = \{a \ b \ c\}$$

$$p(x) = ax^2 + bx + c = \{a \ b \ c\} \begin{bmatrix} x^2 \\ x \\ 1 \end{bmatrix}$$

Polynomial



$$e^x = e^{x \cdot \frac{2}{2}} = (e^{\frac{x}{2}})^2$$

$$e^{100} = (e^{50})^2 = ((e^{25})^2)^2$$

$$= (((e^{12.5})^2)^2)^2$$

$$e^x = (e^{\frac{x}{n}})^n \quad \text{express ()}$$

$$X = 100 \rightarrow \quad X/n < 0.5$$

$$2X < n$$

while loop a tolerance.

a_1

a_2

while $\text{abs}(a_2 - a_1) > \text{tol}$

$$a_1 = a_2$$

$$a_2 = \text{new approx}$$

end