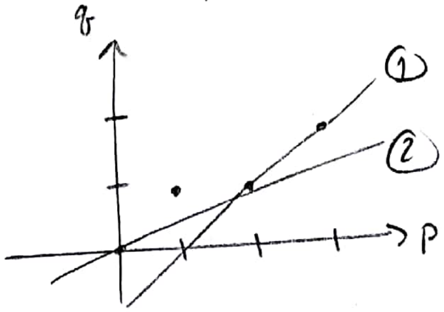
1B) $1 + \epsilon x - \epsilon x^2 + \epsilon^2 x^3 = 0$

$\sum_{pq} C_{pq}\, \epsilon^q x^p = 0$



$\Rightarrow$ 2 dominant balaces

① $1 - \epsilon x^2 \approx 0 \quad \Rightarrow \quad x = \sqrt{\frac{1}{\epsilon}}$

$$1 - \epsilon x_{n+1}^2 = -\epsilon x_n - \epsilon^2 x_n^3$$

$$x_{n+1} = \pm\sqrt{\frac{1}{\epsilon}\left(1 + \epsilon x_n + \epsilon^2 x_n^3\right)}$$

$$\boxed{x_{n+1} = \pm\sqrt{\frac{1}{\epsilon} + x_n + \epsilon x_n^3}}$$

② $-\epsilon x^2 + \epsilon^2 x^3 = 0 \quad \Rightarrow \quad x = \frac{1}{\epsilon}$

$$1 + \epsilon x = \epsilon x^2 (1 - \epsilon x)$$

$$1 - \epsilon x = \frac{1 + \epsilon x}{\epsilon x^2}$$

$$\boxed{x_{n+1} = \frac{1}{\epsilon} - \frac{1 + \epsilon x}{\epsilon^2 x^2}}$$