$$a_{11}x_1 + a_{12}x_2 + \cdots + a_{1n}x_n = b_1$$
$$\vdots$$
$$a_{n1}x_1 + a_{n2}x_2 + \cdots + a_{nn}x_n = b_n$$

$$Ax = b$$

$$a_{11}x_1 + a_{12}x_2 + \cdots + a_{1n}x_n = b_1$$
$$a_{22}x_2 + \cdots + a_{2n}x_n = b_2$$
$$\cdots \quad a_{nn}x_n = b_n$$

$n \longrightarrow 1$

$(n-1) \to 0$

$$x_n = \frac{b_n}{a_{nn}}$$

$$a_{n-1,n-1}x_{n-1} + a_{n-1,n}x_n = b_{n-1}$$

$$x_{n-1} = \frac{1}{a_{n-1,n-1}}\left(b_{n-1} - a_{n-1,n}x_n\right)$$

$$x_{n-2} = \frac{1}{a_{n-2,n-2}}\left(b_{n-2} - a_{n-2\,n-1}\,x_{n-1} - a_{n-2\,n}\,x_n\right)$$

$$\cancel{0 \quad 0 \quad 0 \quad a_{ii} \quad a_{i\,i+1} \quad \cdots \quad a_{in}} \quad : \quad b_i'$$

Sum

$$x_i = \frac{1}{a_{ii}}\left(b_i - \sum_{j=i+1}^{n} a_{ij}\,x_j\right)$$

$R_1: \quad \boxed{a_{11}}x_1 + a_{12}x_2 + a_{13}x_3 = b_1$

$R_2: \quad a_{21}x_1 + \boxed{a_{22}}x_2 + a_{23}x_3 = b_2$

$R3: \quad a_{31}x_1 + a_{32}x_2 + \boxed{a_{33}}x_3 = b_3$

$$1\begin{cases} R_2 - \left(\dfrac{a_{21}}{a_{11}}\right) R_1 = R_2 \\[2ex] R_3 - \left(\dfrac{a_{31}}{a_{11}}\right) R_1 = R_3 \end{cases}$$

$R_1 : a_{11}x_1 + a_{12}x_2 + a_{13}x_3 = b_1$

$R_2 : \quad 0 \quad a_{22}x_2 + a_{23}x_3 = b_2$

$R_3 : \quad 0 \quad 0 \quad + a_{33}x_3 = b_3$

$2 \quad \left\{ R_3 - \left(\frac{a_{32}}{a_{22}}\right) R_2 = R_3 \right.$

$i \Rightarrow \; a_{11}x_1 + a_{12}x_2 + \cdots + a_{1n}x_n = b_1$

$R_2 \quad a_{21}x_1 + a_{22}x_2 + \cdots + a_{2n}x_n = b_2$

$a_{32}x_2$

$n-1 \Rightarrow \quad a_{n-1\,n-1}$

$R_n \quad a_{n1}x_1 + a_{n2}x_2 + \cdots + a_{nn}x_n = b_n$

$A_{n\times n}\, x_{n\times 1} = B_{n\times 1}$

$i = 1 : (n-1) \qquad j = i+1, n$

$$① \to a_{11}x_1 + a_{12}x_2 + a_{13}x_3 + \cdots + a_{1n}x_n = b_1$$

$$② \Rightarrow R_2 \quad a_{22}x_2 + a_{23}x_3 + \cdots + a_{2n}x_n = b_2$$

$$R_3 \quad a_{33}x_3 + \cdots + a_{3n}x_n = b_3$$

$$n-1 \quad a_{n-1\,n-1}x_{n-1} + \cdots = b_{n-1}$$

$$R_n \quad a_{nn}x_n = b_n$$

$i: (1 \ldots n)$

$$① \Rightarrow R_j = R_j - \left(\frac{a_{j1}}{a_{11}}\right) R_1, \quad j = 2, \ldots n$$

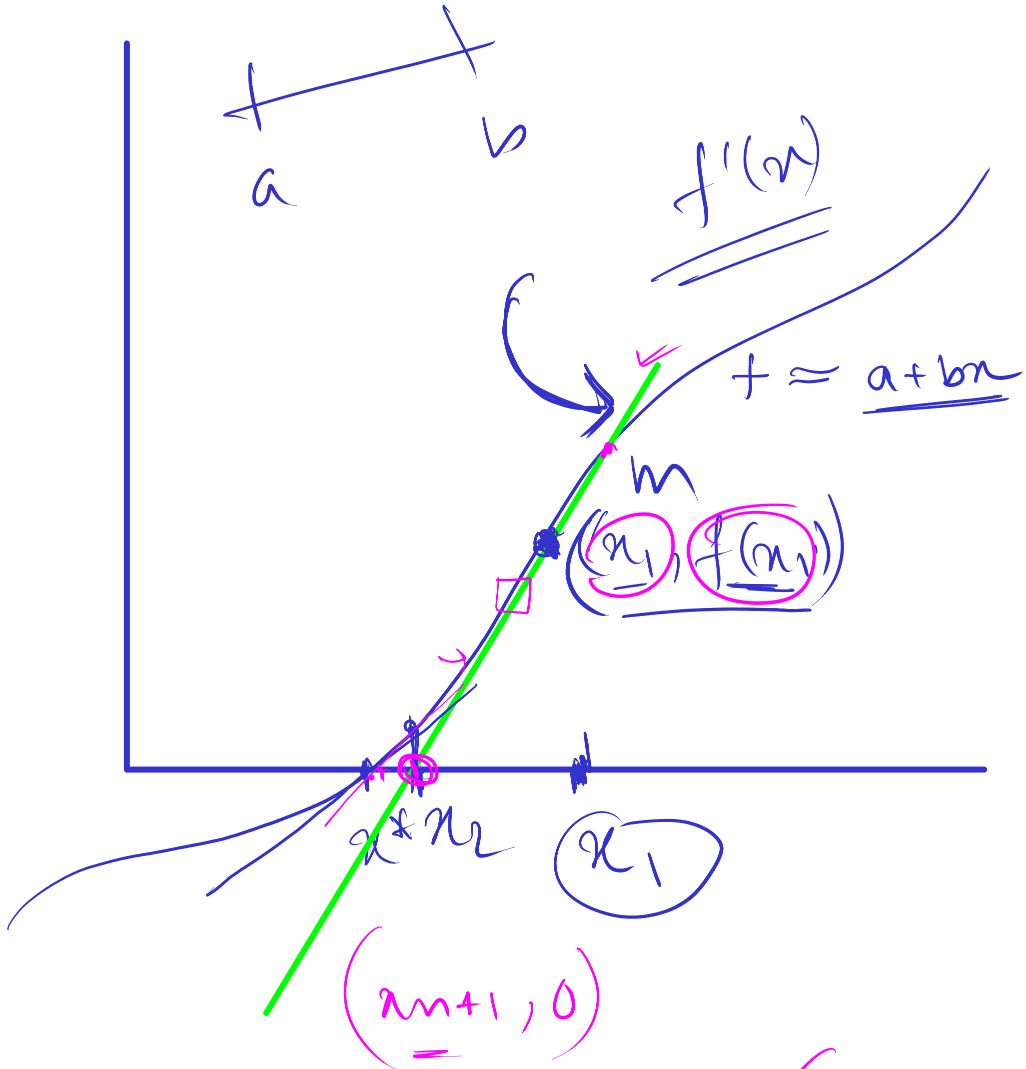
$$② \Rightarrow R_j = R_j - \left(\frac{a_{j2}}{a_{22}}\right) R_2, \quad j = 3, \ldots n$$

$$ⓘ \Rightarrow R_j = R_j - \frac{a_{ji}}{a_{ii}} R_i$$

$j: i \ldots n$

$$a_{jk} = a_{jk} - \frac{a_{ji}}{a_{ii}} a_{ik}$$

$$\begin{array}{cccccccc} 0 & 0 & 0 & a_{ii} & a_{i\,i+1} & \cdots & a_{in} & b_i \\ 0 & 0 & 0 & a_{ji} & a_{j\,i+1} & \cdots & a_{jn} & b_j \end{array}$$



$$y - f(x_n) = f'(x_n)(x - x_n)$$

$$0 - f(x_n) = f'(x_n)(x_{n+1} - x_n)$$

$$x_{n-1} - x_n = -\frac{f(x_n)}{f'(x_n)}$$

$$\boxed{x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}}$$

$$f(x) = x^2 - 4x + 1$$

$$x_{n+1} = f(x_n)$$

$$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$$

$$= g(x_n)$$

$$x^2 - 4x + 1$$

$$g(x) = x - \frac{x^2 - 4x + 1}{2x - 4}$$

$$= \frac{2x^2 - \cancel{4x} - x^2 + \cancel{4x} - 1}{2x - 4}$$

$$= \frac{x^2 - 1}{2(x - 2)}$$

$$x_{n+1} = g(x_n) = x_n - \frac{f(x_n)}{f'(x_n)}$$

$$\boxed{x = g(x)}$$

$$f(x) = 0$$