③+

c_0, c_1, c_2, c_3, c_4 can be calculated from consistency cond. and $O(h^m)$ condition for the method

$$y_{n+1} = \sum_{j=0}^{p} a_j y_{n-j} + h \sum_{j=-1}^{p} b_j f(x_{n-j}, y_{n-j}) \qquad n \geq p$$

Consistency condition

$$\sum_{j=0}^{p} a_j = 1, \quad -\sum_{j=0}^{p} j a_j + \sum_{j=-1}^{p} b_j = 1$$

and $O(h^m)$ method conditions

$$\sum_{j=0}^{p} (-j)^i a_j + i \sum_{j=-1}^{p} (-j)^{i-1} b_j = 1 \qquad i = 2, \ldots m$$

$$= \quad 1 - a = 0 \qquad — ①$$

$$-2a + (b+c+d+e) = 1$$

or $1 + 2a - (b+c+d+e) = 0 \qquad — ②$

$i=2$ $\quad (-2)^2 a + 2[(-1)^1 c + (-2)^1 d + (-3)^1 e] = 1$

or $\quad 1 - 4a + 2(c + 2d + 3e) = 0 \qquad — ③$

$i=3$ $\quad (-2)^3 a + 3[(-1)^2 c + (-2)^2 d + (-3)^2 e] = 1$

$1 + 8a - 3(c + 4d + 9e) = 0 \qquad — ④$

$i=4$ $\quad (-2)^4 a + 4[(-1)^3 c + (-2)^3 d + (-3)^3 e] = 1$

$(1 - 16a) + 4(c + 8d + 27e) = 0 \qquad — ⑤$