

$$\begin{matrix} i & x & y \\ 0 & -2 & 1 \end{matrix}$$

$$\begin{matrix} 1 & 0 & -2 \end{matrix}$$

$$\begin{matrix} 2 & 1 & 2 \end{matrix}$$

$$\begin{matrix} 3 & 2 & 1 \end{matrix}$$

$$W_{01} = \frac{\begin{vmatrix} y_0 & x_0-x \\ y_1 & x_1-x \end{vmatrix}}{x_1-x_0} = \frac{\begin{vmatrix} 1 & -2-x \\ -2 & 0-x \end{vmatrix}}{0-(-2)} = \frac{-x+2(-2-x)}{2} = \frac{-3x-4}{2} = -\frac{3}{2}x-2$$

$$W_{02} = \frac{\begin{vmatrix} y_0 & x_0-x \\ y_2 & x_2-x \end{vmatrix}}{x_2-x_0} = \frac{\begin{vmatrix} 1 & -2-x \\ 2 & 1-x \end{vmatrix}}{1+2} = \frac{1-x-2(2-x)}{3} = \frac{5+x}{3} = \frac{5}{3} + \frac{1}{3}x$$

$$W_{03} = \frac{\begin{vmatrix} y_0 & x_0-x \\ y_3 & x_3-x \end{vmatrix}}{x_3-x_0} = \frac{\begin{vmatrix} 1 & -2-x \\ 1 & 3-x \end{vmatrix}}{3+2} = \frac{3-x+2+x}{5} = 1$$

$$\begin{aligned} W_{012} &= \frac{\begin{vmatrix} -\frac{3}{2}x-2 & x_1-x \\ 1 & x_2-x \end{vmatrix}}{x_2-x_1} = \frac{\begin{vmatrix} -\frac{3}{2}x-2 & -x \\ 1 & 1-x \end{vmatrix}}{1} = \frac{-\frac{3}{2}x-2-(1-x)}{1} = -\frac{3}{2}x-3 \\ W_{013} &= \frac{\begin{vmatrix} -\frac{3}{2}x-2 & x_1-x \\ 1 & x_3-x \end{vmatrix}}{x_3-x_1} = \frac{\begin{vmatrix} -\frac{3}{2}x-2 & -x \\ 1 & 3-x \end{vmatrix}}{3-1} = \frac{-\frac{3}{2}x-2-(-3+x)}{2} = -\frac{3}{2}x+\frac{1}{2} \end{aligned}$$

$$W_{0123} =$$

$$W_{012} = \frac{\begin{vmatrix} W_{01} & x_1-x \\ W_{02} & x_2-x \end{vmatrix}}{x_2-x_1} = \frac{\begin{vmatrix} -\frac{3}{2}x-2 & -x \\ \frac{5}{3}+\frac{1}{3}x & 1-x \end{vmatrix}}{1} = (-\frac{3}{2}x-2)(1-x) + x(\frac{5}{3}+\frac{1}{3}x)$$

$$= -\frac{3}{2}x-2 + \frac{3}{2}x^2+2x + \frac{5}{3}x + \frac{1}{3}x^2 = \frac{11}{6}x^2 + \frac{13}{6}x - 2$$

$$W_{013} = \frac{\begin{vmatrix} W_{01} & x_1-x \\ W_{03} & x_3-x \end{vmatrix}}{x_3-x_1} = \frac{\begin{vmatrix} -\frac{3}{2}x-2 & -x \\ 1 & 3-x \end{vmatrix}}{3-0} = \frac{(-\frac{3}{2}x-2)(3-x) + x}{3}$$

$$\frac{1}{3}(-\frac{3}{2}x-2)(3-x) + \frac{x}{3} = \frac{1}{2}x^2 - \frac{5}{2}x - 2$$

$$W_{0123} = \frac{\begin{vmatrix} W_{012} & x_2-x \\ W_{013} & x_3-x \end{vmatrix}}{x_3-x_2} = \frac{\begin{vmatrix} \frac{11}{6}x^2 + \frac{13}{6}x - 2 & 1-x \\ \frac{1}{2}x^2 - \frac{5}{2}x - 2 & 3-x \end{vmatrix}}{3-1} = \frac{\frac{1}{2}[\frac{11}{6}x^2 + \frac{13}{6}x - 2](3-x) - (\frac{1}{2}x^2 - \frac{5}{2}x - 2)(1-x)}{2}$$

$$= -(\frac{1}{2}x^2 - \frac{1}{2}x - 2)(1-x) - \frac{1}{2}[\frac{11}{6}x^2 + \frac{13}{6}x - 2](3-x) - (\frac{1}{2}x^2 - \frac{5}{2}x - 2)(1-x) - \frac{1}{2}[\frac{11}{6}x^2 + \frac{13}{6}x - 2](3-x)$$

$$= -\frac{2}{3}x^3 + \frac{7}{6}x^2 + \frac{1}{2}x - 2$$