$$\int_{\delta_{20}} \left(\lambda \frac{\partial p^{(9)}}{\partial x_1} \frac{\partial p^{(8)}}{\partial x_1} + \lambda \frac{\partial p^{(9)}}{\partial x_2} \frac{\partial p^{(8)}}{\partial x_2} + a p^{(9)} p^{(8)} \right) dx =$$

$$\boxed{\begin{array}{l} r = 20: \; 1 \leftrightarrow 8 \\ \qquad\quad\; 2 \leftrightarrow 9 \\ \qquad\quad\; 3 \leftrightarrow 14 \end{array}} \qquad \delta_{20} \leftrightarrow \Delta$$

$$= \int_{\delta_{20}} \left(\lambda \frac{\partial p^{(20,2)}}{\partial x_1} \frac{\partial p^{(20,1)}}{\partial x_1} + \lambda \frac{\partial p^{(20,2)}}{\partial x_2} \frac{\partial p^{(20,1)}}{\partial x_2} + a p^{(20,2)} p^{(20,1)} \right) dx =$$

$$= \int_{\Delta} \left(\lambda(x_{\delta_{20}}(\xi)) \frac{\partial p^{(2)}(\xi)}{\partial x_1} \frac{\partial p^{(1)}(\xi)}{\partial x_1} + \lambda(\cdot) \frac{\partial p^{(2)}(\xi)}{\partial x_2} \frac{\partial p^{(1)}(\xi)}{\partial x_2} + a(\cdot) p^{(2)} p^{(1)} \right) |J_{\delta_{20}}| \, d\xi$$

$$x = x_{\delta_{20}}(\xi) = J_{\delta_{20}} \xi + x^{(8)}$$

<u>NR:</u> $\nabla_x = J_{\delta_r}^{-T} \nabla_\xi$, $\nabla_x = \begin{pmatrix} \frac{\partial}{\partial x_1} \\ \frac{\partial}{\partial x_2} \end{pmatrix}$, $\nabla_\xi = \begin{pmatrix} \frac{\partial}{\partial \xi_1} \\ \frac{\partial}{\partial \xi_2} \end{pmatrix}$

$$\xi = \begin{pmatrix} \xi_1 \\ \xi_2 \end{pmatrix} = J_{\delta_{20}}^{-1} (x - x^{(8)}), \quad J_{\delta_{20}}^{-1} = \frac{1}{|J_{\delta_{20}}|} \begin{bmatrix} x_2^{(14)} - x_2^{(8)}, & -(x_1^{(14)} - x_1^{(8)}) \\ -(x_2^{(9)} - x_2^{(8)}), & x_1^{(9)} - x_1^{(8)} \end{bmatrix}$$

$$\nabla_x = J_{\delta_r}^{-T} \nabla_\xi \left\{ \begin{array}{l} \frac{\partial}{\partial x_1} = \frac{\partial}{\partial \xi_1} \frac{\partial \xi_1}{\partial x_1} + \frac{\partial}{\partial \xi_2} \frac{\partial \xi_2}{\partial x_1} = \\ \qquad = \frac{1}{|J_{\delta_{20}}|} \left[(x_2^{(14)} - x_2^{(8)}) \frac{\partial}{\partial \xi_1} - (x_2^{(9)} - x_2^{(8)}) \frac{\partial}{\partial \xi_2} \right] \\ \frac{\partial}{\partial x_2} = \frac{1}{|J_{\delta_{20}}|} \left[-(x_1^{(14)} - x_1^{(8)}) \frac{\partial}{\partial \xi_1} + (x_1^{(9)} - x_1^{(8)}) \frac{\partial}{\partial \xi_2} \right] \end{array} \right.$$

$$p^{(2)}(\xi) = \xi_1, \quad \frac{\partial p^{(2)}}{\partial \xi_1} = 1, \quad \frac{\partial p^{(2)}}{\partial \xi_2} = 0$$

$$p^{(1)}(\xi) = 1 - \xi_1 - \xi_2, \quad \frac{\partial p^{(1)}}{\partial \xi_1} = -1, \quad \frac{\partial p^{(1)}}{\partial \xi_2} = -1$$

$$\underset{QF}{\approx} \left\{ \lambda(x_{\delta_{20}}(\xi_*)) \left[\frac{1}{|J_{\delta_{20}}|} (x_2^{(14)} - x_2^{(8)}) \frac{1}{|J_{\delta_{20}}|} (x_2^{(9)} - x_2^{(14)}) \right] \right.$$

$$+ \lambda(x_{\delta_{20}}(\xi_*)) \left[\frac{1}{|J_{\delta_{20}}|} (x_1^{(8)} - x_1^{(14)}) \cdot \frac{1}{|J_{\delta_{20}}|} (x_1^{(14)} - x_1^{(9)}) \right]$$

$$\left. + a(x_{\delta_{20}}(\xi_*)) \cdot \frac{1}{3} \frac{1}{3} \right\} |J_{\delta_{20}}| \cdot \frac{1}{2} =: K_{1,2}^{(20)}$$