

$$(1) \quad \left( \frac{F_x}{F_y} \right)_{xy} = 0.$$

$$(2) \quad x^7 + ax^3 + bx^2 + cx + 1 = 0.$$

$$(3) \quad \mathcal{Z}(X, Y) = X(x) \partial_x + Y(y) \partial_y + (X' - Y') \sum_{i=3}^d u^i \partial_{u^i}.$$

$$(4) \quad \mathcal{Z}_k(X, Y) = X(x) \partial_x + Y(y) \partial_y + \sum_{i=1}^{k+1} X^{(i)} \frac{\xi_i}{i!} + \sum_{j=1}^{k+1} Y^{(j)} \frac{\theta_j}{j!}.$$

$$(5) \quad \nu_k = (d-2) \frac{(k+1)(k+2)}{2} - 2(k+1)$$

$$(6) \quad \begin{aligned} HF(k) &= (k+1)(d-2) - 2, \text{ for } k > 1, \\ HF(1) &= 2d - 7, HF(0) = d - 3. \end{aligned}$$

$$(7) \quad \begin{aligned} q &= \frac{(u_{0,0}^2 u_{1,2} - 3u_{0,0} u_{0,1} u_{1,1} - u_{0,0} u_{0,2} u_{1,0} + 3u_{0,1}^2 u_{1,0})^2}{(u_{0,0} u_{1,1} - u_{0,1} u_{1,0})^3 u_{0,0}}, \\ p &= \frac{(u_{0,0}^2 u_{2,1} - u_{0,0} u_{0,1} u_{2,0} - u_{0,0} u_{1,0} u_{1,1} + u_{0,1} u_{1,0}^2)^2 u_{0,0}}{(u_{0,0} u_{1,1} - u_{0,1} u_{1,0})^3}, \end{aligned}$$

$$(8) \quad \begin{aligned} w_1 &= \frac{(u_{3,1} u_{0,0}^3 + (-u_{0,1} u_{3,0} - 2u_{1,1} u_{2,0}) u_{0,0}^2 + (2u_{0,1} u_{1,0} u_{2,0} + u_{1,0}^2 u_{1,1}) u_{0,0} - u_{0,1} u_{1,0}^3) u_{0,0}}{(u_{0,0} u_{1,1} - u_{0,1} u_{1,0})^2}, \\ w_2 &= \frac{u_{2,2} u_{0,0}^3 + (-3u_{0,1} u_{2,1} - u_{0,2} u_{2,0} - u_{1,0} u_{1,2}) u_{0,0}^2 + (3u_{0,1}^2 u_{2,0} + 3u_{0,1} u_{1,0} u_{1,1} + u_{0,2} u_{1,0}^2) u_{0,0}}{(u_{0,0} u_{1,1} - u_{0,1} u_{1,0})^2} \\ &\quad - 3 \frac{u_{1,0}^2 u_{0,1}^2}{(u_{0,0} u_{1,1} - u_{0,1} u_{1,0})^2}, \\ w_3 &= \frac{u_{0,0}^2 u_{1,3} + (-6u_{0,1} u_{1,2} - 4u_{0,2} u_{1,1} - u_{0,3} u_{1,0}) u_{0,0} + (15u_{0,1}^2 u_{1,1} + 10u_{0,1} u_{0,2} u_{1,0})}{(u_{0,0} u_{1,1} - u_{0,1} u_{1,0})^2} \\ &\quad - 15 \frac{u_{1,0} u_{0,1}^3}{u_{0,0} (u_{0,0} u_{1,1} - u_{0,1} u_{1,0})^2}, \end{aligned}$$

$$(9) \quad \sum_{i=1}^3 \sum_{j=1}^2 A_{ij} w_{i,j} + A_0 = 0.$$

$$(10) \quad A_{11}^1 = -\frac{(3q_1^2 - 2w_3)(3q_2^2 - 2w_1)}{9q_2^4 - 12q_2^2 w_1 + 4w_1^2},$$

$$(11) \quad A_{12}^1 = -\frac{9q_2^3 q_1 - 6q_2^2 w_2 - 6q_2 q_1 w_1 + 6q_2^2 + 4w_1 w_2 - 4w_1}{9q_2^4 - 12q_2^2 w_1 + 4w_1^2},$$

$$(12) \quad A_{21}^1 = \frac{9q_2^3 q_1 - 6q_2^2 w_2 - 6q_2 q_1 w_1 + 18q_2^2 + 4w_1 w_2 - 12w_1}{9q_2^4 - 12q_2^2 w_1 + 4w_1^2},$$

$$(13) \quad A_{31}^1 = 0, A_{32}^1 = 0, A_{22}^1 = 1$$

$$(14) \quad A_{11}^2 = -\frac{(3q_1^2 - 2w_3)(3q_1 q_2 - 2w_2 + 2)}{9q_2^4 - 12q_2^2 w_1 + 4w_1^2},$$

$$(15) \quad A_{12}^2 = -\frac{9q_2^2 q_1^2 - 12q_1 q_2 w_2 + 12q_1 q_2 + 4w_2^2 - 8w_2 + 4}{9q_2^4 - 12q_2^2 w_1 + 4w_1^2},$$

$$A_{21}^2 = \frac{6w_3 q_2^2 - 12q_1 q_2 w_2 + 6w_1 q_1^2 + 24q_1 q_2 - 4w_3 w_1 + 4w_2^2 - 16w_2 + 12}{9q_2^4 - 12q_2^2 w_1 + 4w_1^2},$$

$$(16) \quad A_{31}^2 = \frac{3q_1 q_2 - 2w_2 + 6}{3q_2^2 - 2w_1}, A_{32}^2 = 1, A_{22}^2 = 0$$

$$(17) \quad \sum_{i=1}^3 \sum_{j=1}^2 A_{ij}^1 w_{i,j} = \frac{(4w_2 + 2)q_2 - 4q_1 w_1}{3q_2^2 - 2w_1},$$

$$(18) \quad \sum_{i=1}^3 \sum_{j=1}^2 A_{ij}^2 w_{i,j} = \frac{12q_2^3 w_3 + 60q_1 q_2^2 + ((-12q_1^2 - 8w_3)w_1 - 8w_2^2 + 4w_2 + 4)q_2 + 16w_1 q_1 \left(w_2 - \frac{11}{4}\right)}{(3q_2^2 - 2w_1)^2}.$$

$$(19) \quad \begin{aligned} HF(0) &= 1, HF(1) = 1, \\ HF(k) &= 2k, k \geq 2. \end{aligned}$$

$$\begin{aligned}
(20) \quad q &= \frac{v_{0,0}}{u_{0,0}}, \quad p = \frac{u_{0,0}v_{0,1} - u_{0,1}v_{0,0}}{u_{0,0}(u_{0,0}v_{1,0} - u_{1,0}v_{0,0})}, \\
w_1 &= \frac{(u_{0,0}u_{1,1} - u_{0,1}u_{1,0})u_{0,0}}{(u_{0,0}v_{1,0} - u_{1,0}v_{0,0})^2}, \\
w_2 &= \frac{(u_{0,0}^2v_{2,0} - u_{0,0}u_{1,0}v_{1,0} - u_{0,0}u_{2,0}v_{0,0} + u_{1,0}^2v_{0,0})u_{0,0}}{(u_{0,0}v_{1,0} - u_{1,0}v_{0,0})^2}, \\
w_3 &= \frac{u_{0,0}^2v_{1,1} - u_{0,0}u_{0,1}v_{1,0} - u_{1,0}v_{0,1}u_{0,0} + u_{0,1}u_{1,0}v_{0,0}}{(u_{0,0}v_{1,0} - u_{1,0}v_{0,0})^2}, \\
w_4 &= \frac{u_{0,0}^2v_{0,2} - 3u_{0,1}v_{0,1}u_{0,0} - u_{0,0}u_{0,2}v_{0,0} + 3v_{0,0}u_{0,1}^2}{u_{0,0}(u_{0,0}v_{1,0} - u_{1,0}v_{0,0})^2},
\end{aligned}$$

$$\begin{aligned}
(21) \quad &qw_{1,q} + pw_{2,q} - ((qw_1 - w_3)p + w_4)w_{2,p} + w_{3,q} - (w_{3,p} - qw_{1,p})(-pw_2 + qw_1 - w_3) = 0, \\
&q(w_2p^2 + (2qw_1 - 2w_3)p + w_4)w_{1,q} + p((qw_1 - w_3)p + w_4)w_{2,1} + ((qw_1 - w_3)P + w_4)^2w_{2,p} \\
(22) \quad &-(w_2p^2 + (2qw_1 - 2w_3)p + w_4)w_{3,q} + w_{4,q} - (pw_2 + qw_1 - w_3)^{-2}w_{4,p} = \\
&(-2q^2w_1^2 + (4qw_3 + 2p)w_1 + 2w_2w_4 - 2w_3^2)(pw_2 + qw_1 - w_3).
\end{aligned}$$

$$\begin{aligned}
(23) \quad HF(0) &= 2, HF(1) = 3, \\
HF(k) &= 3k + 1, \quad k \geq 2.
\end{aligned}$$

$$(24) \quad q = \frac{v_{0,0}}{u_{0,0}}, \quad p = \frac{w_{0,0}}{u_{0,0}}$$

$$\begin{aligned}
(25) \quad s_1 &= \frac{u_{0,0}v_{0,1} - u_{0,1}v_{0,0}}{u_{0,0}(u_{0,0}v_{1,0} - v_{0,0}u_{1,0})}, \quad s_2 = \frac{u_{0,0}w_{1,0} - w_{0,0}u_{1,0}}{u_{0,0}v_{1,0} - v_{0,0}u_{1,0}}, \\
s_3 &= \frac{u_{0,0}w_{0,1} - u_{0,1}w_{0,0}}{u_{0,0}(u_{0,0}v_{1,0} - v_{0,0}u_{1,0})}
\end{aligned}$$

$$(26) \quad r = \frac{(u_{0,0}u_{1,1} - u_{0,1}u_{1,0})u_{0,0}}{(u_{0,0}v_{1,0} - v_{0,0}u_{1,0})^2}.$$