Families of rational solutions of order 5 to the KPI equation depending on 8 parameters

Pierre Gaillard

Rational solutions of order 5 to the KPI equation depending on 8 parameters.

P. Gaillard,
Université de Bourgogne,
Institut de mathématiques de Bourgogne,
9 avenue Alain Savary BP 47870
21078 Dijon Cedex, France :
E-mail : Pierre.Gaillard@u-bourgogne.fr

Abstract

In this paper, we go on with the study of rational solutions to the Kadomtsev-Petviashvili equation (KPI). We construct here rational solutions of order 5 as a quotient of 2 polynomials of degree 60 in x, y and t depending on 8 parameters. The maximum modulus of these solutions at order 5 is checked as equal to $2(2N+1)^2 = 242$. We study their modulus patterns in the plane (x, y) and their evolution according to time and parameters a_1, a_2, a_3, a_4, b_1, b_2, b_3, b_4. We get triangle and ring structures as obtained in the case of the NLS equation.

PACS numbers :
33Q55, 37K10, 47.10A-, 47.35.Fg, 47.54.Bd

1 Introduction

We consider the Kadomtsev-Petviashvili equation (KPI) in the following form

$$(4u_t - 6uu_x + u_{xxx})_x - 3u_{yy} = 0, \tag{1}$$

where subscripts x, y and t denote partial derivatives.
Kadomtsev and Petviashvili [1] first proposed this equation in 1970. This equation is a model for example, for surface and internal water waves [2], and in nonlinear optics [3]. Zakharov extended the inverse scattering transform (IST) to this KPI equation, and obtained several exact solutions.
The first rational solutions were found in 1977 by Manakov, Zakharov, Bordag and Matveev [4]. Other researches were led and more general rational solutions to the KPI equation were obtained. We can mention the following works by Krichever in 1978 [5, 6], Satsuma and Ablowitz in 1979 [7], Matveev in 1979 [8], Freeman and Nimmo in 1983 [9, 10], Pelinovsky and Stepanyants in 1993 [11],

Pelinovsky in 1994 [12], Ablowitz and Villarroel [13, 14] in 1997-1999, Biondini and Kodama [15, 16, 17] in 2003-2007.

We recall the author's results about the representations of the solutions to the KPI equation, first in terms of Fredholm determinants of order $2N$ depending on $2N-1$ parameters, then in terms of wronskians of order $2N$ with $2N-1$ parameters. These representations allow to obtain an infinite hierarchy of solutions to the KPI equation, depending on $2N-1$ real parameters .
Then we construct the rational solutions of order N depending on $2N-2$ parameters without presence of a limit which can be written as a ratio of two polynomials of x, y and t of degree $2N(N+1)$.
The maximum modulus of these solutions at order N is equal to $2(2N+1)^2$. This method gives an infinite hierarchy of rational solutions of order N depending on $2N-2$ real parameters. We construct here the explicit rational solutions of order 5, depending on 8 real parameters, and the representations of their modulus in the plane of the coordinates (x,y) according to the real parameters a_1, b_1, a_2, b_2, a_3, b_3, a_4, b_4 and time t.

2 Rational solutions to the KPI equation of order N depending on $2N-2$ parameters

2.1 Fredholm representation

One defines real numbers λ_j such that $-1<\lambda_\nu<1$, $\nu=1,\dots,2N$ depending on a parameter ϵ that will be intended to tend towards 0; they can be written as

$$\lambda_j = 1-2\epsilon^2 j^2, \quad \lambda_{N+j}=-\lambda_j, \quad 1\le j\le N, \tag{2}$$

The terms κ_ν, δ_ν, γ_ν, τ_ν and $x_{r,\nu}$ are functions of λ_ν, $1\le\nu\le 2N$; they are defined by the formulas :

$$\begin{array}{l}
\kappa_j = 2\sqrt{1-\lambda_j^2}, \quad \delta_j=\kappa_j\lambda_j, \quad \gamma_j=\sqrt{\frac{1-\lambda_j}{1+\lambda_j}};\\
x_{r,j}=(r-1)\ln\frac{\gamma_j-i}{\gamma_j+i}, \quad r=1,3, \quad \tau_j=-12i\lambda_j^2\sqrt{1-\lambda_j^2}-4i(1-\lambda_j^2)\sqrt{1-\lambda_j^2},\\
\kappa_{N+j}=\kappa_j, \quad \delta_{N+j}=-\delta_j, \quad \gamma_{N+j}=\gamma_j^{-1},\\
x_{r,N+j}=-x_{r,j},, \quad \tau_{N+j}=\tau_j \quad j=1,\dots,N.
\end{array} \tag{3}$$

e_ν $1\le\nu\le 2N$ are defined in the following way :

$$\begin{array}{l}
e_j = 2i\left(\sum_{k=1}^{1/2\,M-1} a_k (je)^{2\,k-1} - i\sum_{k=1}^{1/2\,M-1} b_K (je)^{2\,k-1}\right),\\
e_{N+j} = 2i\left(\sum_{k=1}^{1/2\,M-1} a_k (je)^{2\,k-1} + i\sum_{k=1}^{1/2\,M-1} b_k (je)^{2\,k-1}\right), \quad 1\le j\le N,\\
a_k, b_k \in \mathbf{R}, \quad 1\le k\le N-1.
\end{array} \tag{4}$$

ϵ_ν, $1 \leq \nu \leq 2N$ are real numbers defined by :

$$e_j = 1, \quad e_{N+j} = 0 \quad 1 \leq j \leq N. \tag{5}$$

Let I be the unit matrix and $D_r = (d_{jk})_{1\leq j,k\leq 2N}$ the matrix defined by :

$$d_{\nu\mu} = (-1)^{\epsilon_\nu} \prod_{\eta\neq\mu} \left(\frac{\gamma_\eta + \gamma_\nu}{\gamma_\eta - \gamma_\mu}\right) \exp(i\kappa_\nu x - 2\delta_\nu y + \tau_\nu t + x_{r,\nu} + e_\nu). \tag{6}$$

Then we recall the following result :

Theorem 2.1 *The function v defined by*

$$v(x,y,t) = -2 \frac{|n(x,y,t)|^2}{d(x,y,t)^2} \tag{7}$$

where

$$n(x,y,t) = \det(I + D_3(x,y,t)), \tag{8}$$

$$d(x,y,t) = \det(I + D_1(x,y,t)), \tag{9}$$

and $D_r = (d_{jk})_{1\leq j,k\leq 2N}$ the matrix

$$d_{\nu\mu} = (-1)^{\epsilon_\nu} \prod_{\eta\neq\mu} \left(\frac{\gamma_\eta + \gamma_\nu}{\gamma_\eta - \gamma_\mu}\right) \exp(i\kappa_\nu x - 2\delta_\nu y + \tau_\nu t + x_{r,\nu} + e_\nu). \tag{10}$$

is a solution to the KPI equation (1), depending on $2N-1$ parameters a_k, b_k, $1 \leq k \leq N-1$ and ϵ.

2.2 Wronskian representation

We use the following notations :

$$\phi_{r,\nu} = \sin\Theta_{r,\nu}, \quad 1 \leq \nu \leq N, \quad \phi_{r,\nu} = \cos\Theta_{r,\nu}, \quad N+1 \leq \nu \leq 2N, \quad r = 1,3, \tag{11}$$

with the arguments

$$\Theta_{r,\nu} = \tfrac{\kappa_\nu x}{2} + i\delta_\nu y - i\tfrac{x_{r,\nu}}{2} - i\tfrac{\tau_\nu}{2}t + \gamma_\nu w - i\tfrac{e_\nu}{2}, \quad 1 \leq \nu \leq 2N. \tag{12}$$

$W_r(w)$ denotes the wronskian of the functions $\phi_{r,1}, \dots, \phi_{r,2N}$ defined by

$$W_r(w) = \det[(\partial_w^{\mu-1}\phi_{r,\nu})_{\nu,\,\mu\in[1,\dots,2N]}]. \tag{13}$$

We consider the matrix $D_r = (d_{\nu\mu})_{\nu,\,\mu\in[1,\dots,2N]}$ defined in (10). Then we have the following statement :

Theorem 2.2 *The function v defined by :*

$$v(x,y,t) = -2\ \frac{|W_3(\phi_{3,1},\ldots,\phi_{3,2N})(0)|^2}{(W_1(\phi_{1,1},\ldots,\phi_{1,2N})(0))^2}$$

is a solution to the KPI equation depending on $2N-1$ real parameters a_k, b_k $1 \leq k \leq N-1$ and ϵ, with ϕ^r_ν defined in (11)

$$\begin{array}{ll}\phi_{r,\nu}(w) = \sin(\frac{\kappa_\nu x}{2} + i\delta_\nu y - i\frac{x_{r,\nu}}{2} - i\frac{\tau_\nu}{2}t + \gamma_\nu w - i\frac{e_\nu}{2}), & 1 \leq \nu \leq N, \\ \phi_{r,\nu}(w) = \cos(\frac{\kappa_\nu x}{2} + i\delta_\nu y - i\frac{x_{r,\nu}}{2} - i\frac{\tau_\nu}{2}t + \gamma_\nu w - i\frac{e_\nu}{2}), & N+1 \leq \nu \leq 2N, \quad r = 1,3,\end{array}$$

κ_ν, δ_ν, $x_{r,\nu}$, γ_ν, e_ν being defined in(3), (2) and (4).

2.3 Rational solutions

We recall the last result concerning the rational solutions to the KPI equation as a quotient of two determinants.
We use the following notations :

$$X_\nu = \frac{\kappa_\nu x}{2} + i\delta_\nu y - i\frac{x_{3,\nu}}{2} - i\frac{\tau_\nu}{2}t - i\frac{e_\nu}{2},$$
$$Y_\nu = \frac{\kappa_\nu x}{2} + i\delta_\nu y - i\frac{x_{1,\nu}}{2} - i\frac{\tau_\nu}{2}t - i\frac{e_\nu}{2},$$

for $1 \leq \nu \leq 2N$, with κ_ν, δ_ν, $x_{r,\nu}$ defined in (3) and parameters e_ν defined by (4).
We define the following functions :

$$\begin{array}{ll}\varphi_{4j+1,k} = \gamma_k^{4j-1}\sin X_k, & \varphi_{4j+2,k} = \gamma_k^{4j}\cos X_k, \\ \varphi_{4j+3,k} = -\gamma_k^{4j+1}\sin X_k, & \varphi_{4j+4,k} = -\gamma_k^{4j+2}\cos X_k,\end{array} \tag{14}$$

for $1 \leq k \leq N$, and

$$\begin{array}{ll}\varphi_{4j+1,N+k} = \gamma_k^{2N-4j-2}\cos X_{N+k}, & \varphi_{4j+2,N+k} = -\gamma_k^{2N-4j-3}\sin X_{N+k}, \\ \varphi_{4j+3,N+k} = -\gamma_k^{2N-4j-4}\cos X_{N+k}, & \varphi_{4j+4,N+k} = \gamma_k^{2N-4j-5}\sin X_{N+k},\end{array} \tag{15}$$

for $1 \leq k \leq N$.
We define the functions $\psi_{j,k}$ for $1 \leq j \leq 2N$, $1 \leq k \leq 2N$ in the same way, the term X_k is only replaced by Y_k.

$$\begin{array}{ll}\psi_{4j+1,k} = \gamma_k^{4j-1}\sin Y_k, & \psi_{4j+2,k} = \gamma_k^{4j}\cos Y_k, \\ \psi_{4j+3,k} = -\gamma_k^{4j+1}\sin Y_k, & \psi_{4j+4,k} = -\gamma_k^{4j+2}\cos Y_k,\end{array} \tag{16}$$

for $1 \leq k \leq N$, and

$$\begin{array}{ll}\psi_{4j+1,N+k} = \gamma_k^{2N-4j-2}\cos Y_{N+k}, & \psi_{4j+2,N+k} = -\gamma_k^{2N-4j-3}\sin Y_{N+k}, \\ \psi_{4j+3,N+k} = -\gamma_k^{2N-4j-4}\cos Y_{N+k}, & \psi_{4j+4,N+k} = \gamma_k^{2N-4j-5}\sin Y_{N+k},\end{array} \tag{17}$$

for $1 \leq k \leq N$.
Then we get the following result :

Theorem 2.3 *The function v defined by :*

$$v(x,y,t) = -2\frac{|\det((n_{jk})_{j,k\in[1,2N]})|^2}{\det((d_{jk})_{j,k\in[1,2N]})^2} \tag{18}$$

is a rational solution to the KPI equation (1).

$$(4u_t - 6uu_x + u_{xxx})_x - 3u_{yy} = 0,$$

where

$$\begin{array}{l}
n_{j1} = \varphi_{j,1}(x,y,t,0),\ 1 \leq j \leq 2N \quad n_{jk} = \frac{\partial^{2k-2}\varphi_{j,1}}{\partial\epsilon^{2k-2}}(x,y,t,0),\\
n_{jN+1} = \varphi_{j,N+1}(x,y,t,0),\ 1 \leq j \leq 2N \quad n_{jN+k} = \frac{\partial^{2k-2}\varphi_{j,N+1}}{\partial\epsilon^{2k-2}}(x,y,t,0),\\
d_{j1} = \psi_{j,1}(x,y,t,0),\ 1 \leq j \leq 2N \quad d_{jk} = \frac{\partial^{2k-2}\psi_{j,1}}{\partial\epsilon^{2k-2}}(x,y,t,0),\\
d_{jN+1} = \psi_{j,N+1}(x,y,t,0),\ 1 \leq j \leq 2N \quad d_{jN+k} = \frac{\partial^{2k-2}\psi_{j,N+1}}{\partial\epsilon^{2k-2}}(x,y,t,0),\\
2 \leq k \leq N,\ 1 \leq j \leq 2N
\end{array} \tag{19}$$

The functions φ and ψ are defined in (14),(15), (16), (17).

3 Explicit expression of rational solutions of order 5 depending on 8 parameters

In the the following, we explicitly construct rational solutions to the KPI equation of order 5 depending on 8 parameters.
Because of the length of the expression, we cannot give it in this text. We only give the expression without parameters in the appendix.

We give patterns of the modulus of the solutions in the plane (x,y) of coordinates in function of parameters a_1, a_2, a_3, a_4, b_1, b_2, b_3, b_4 and time t.
When at least one parameter is not equal to 0, we observe the presence of 15 peaks. The maximum modulus of these solutions is checked in this case $N = 5$, equal to $2(2N+1)^2 = 2 \times 11^2 = 242$.

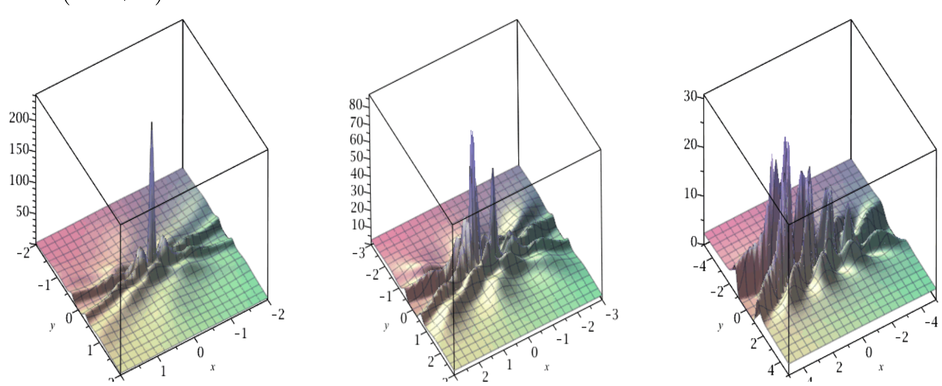

Figure 1. Solution of order 5 to KPI, on the left for $t = 0$; in the center for $t = 0,01$; on the right for $t = 0,1$; all parameters equal to 0.

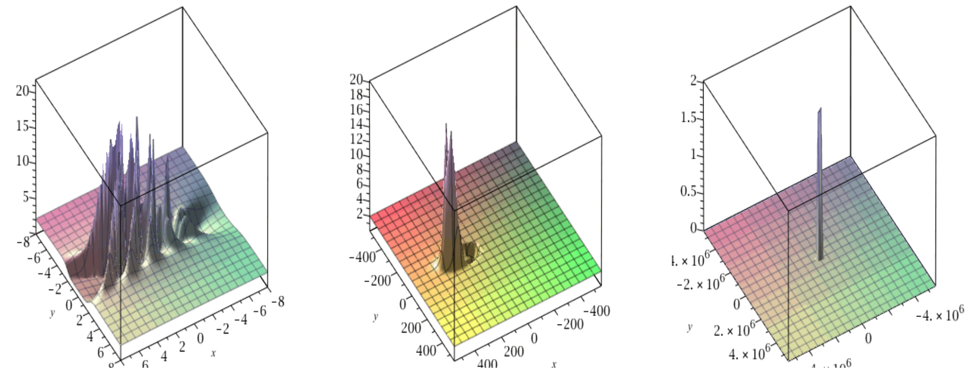

Figure 2. Solution of order 5 to KPI, on the left for $t = 0,2$; in the center for $t = 20$; on the right for $t = 50$; all parameters equal to 0.

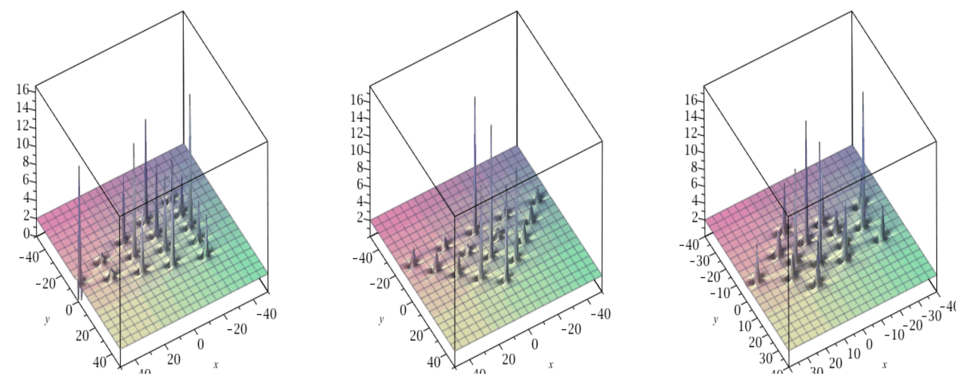

Figure 3. Solution of order 5 to KPI for $t = 0$, on the left for $a_1 = 10^4$; in the center for $b_1 = 10^4$; on the right for $a_2 = 10^6$; all other parameters equal to 0.

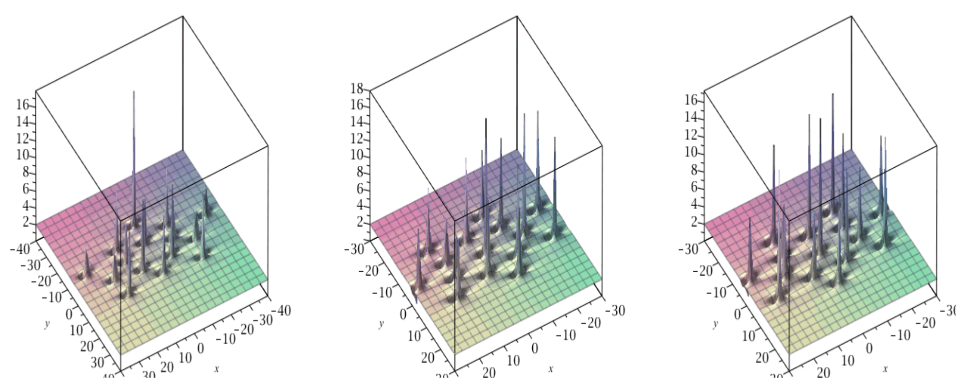

Figure 4. Solution of order 5 to KPI for $t = 0$, on the left for $b_2 = 10^6$; in the center for $a_3 = 10^8$; on the right for $b_3 = 10^8$; all other parameters equal to 0.

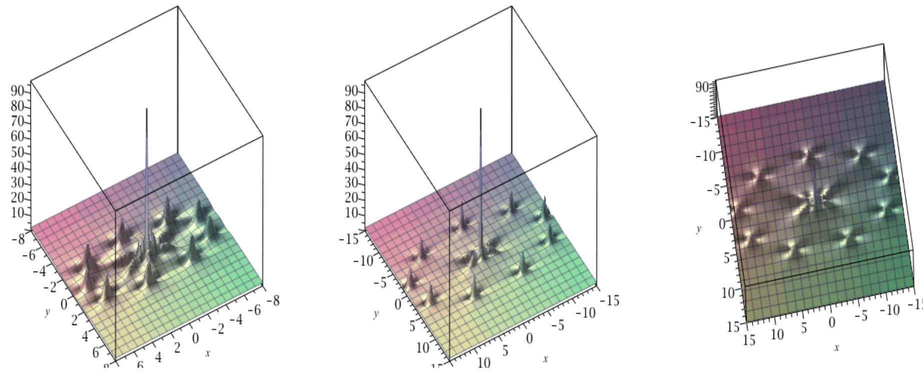

Figure 5. Solution of order 5 to KPI for $t = 0$, on the left for $a_4 = 10^8$; in the center for $b_4 = 10^8$; on the right for $b_4 = 10^8$, sight on top; all other parameters equal to 0.

4 Conclusion

We obtain N-th order rational solutions to the KPI equation depending on $2N-2$ real parameters. These solutions can be expressed in terms of a ratio of two polynomials of degree $2N(N+1)$ in x, y and t. The maximum modulus of these solutions is equal to $2(2N+1)^2$. This gives a new approach to find explicit solutions for higher orders and try to describe the structure of these rational solutions. Here, we have given a complete description of rational solutions of order 5 with 8 parameters by giving explicit expressions of polynomials of those solutions.

We construct the modulus of solutions in the (x, y) plane of coordinates; different structures appear. For a given t, when one parameter grows and the other ones are equal to 0 we obtain triangular or rings or concentric rings. There are four types of patterns. For $a_1 \neq 0$ or $b_1 \neq 0$, and other parameters equal to zero, we obtain a triangle with 15 peaks. For $a_2 \neq 0$ or $b_2 \neq 0$, and other parameters equal to zero, we obtain three concentric rings of 5 peaks on each of them. For $a_3 \neq 0$ or $b_3 \neq 0$, and other parameters equal to zero, we obtain two concentric rings of 7 peaks on each of them with a central peak; in the last case, when $a_4 \neq 0$ or $b_4 \neq 0$, and other parameters equal to zero, we obtain one ring with 9 peaks with the lump L_3 in the center.

References

[1] B.B. Kadomtsev, V.I. Petviashvili, On the stability of solitary waves in weakly dispersing media, Sov. Phys. Dokl., V. 15, N. 6, 539-541, 1970

[2] M.J. Ablowitz, H. Segur On the evolution of packets of water waves, J. Fluid Mech., V. 92, 691-715, 1979

[3] D.E. Pelinovsky, Y.A. Stepanyants, Y.A. Kivshar, Self-focusing of plane dark solitons in nonlinear defocusing media, Phys. Rev. E, V. 51, 5016-5026, 1995

[4] S.V. Manakov, V.E. Zakharov, L.A. Bordag, V.B. Matveev, Two-dimensional solitons of the Kadomtsev-Petviashvili equation and their interaction, Phys. Letters, V. 63A, N. 3, 205-206, 1977

[5] I. Krichever, Rational solutions of the Kadomtcev-Petviashvili equation and integrable systems of n particules on a line, Funct. Anal. and Appl., V. 12, N. 1 : 59-61, 1978

[6] I. Krichever, S.P. Novikov Holomorphic bundles over Riemann surfaces and the KPI equation, Funkt. Ana. E Pril., V. 12, 41-52, 1979

[7] J. Satsuma, M.J. Ablowitz, Two-dimensional lumps in nonlinear dispersive systems, J. Math. Phys., V. 20, 1496-1503, 1979

[8] V.B. Matveev, Darboux transformation and explicit solutions of the Kadomtcev-Petviaschvily equation depending on functional parameters, Letters in Mathematical Physics, V. 3, 213-216, 1979

[9] N. C Freeman, J.J.C. Nimmo Rational solutions of the KdV equation in wronskian form, Phys. Letters, V. 96 A, N. 9, 443-446, 1983

[10] N. C Freeman, J.J.C. Nimmo The use of Bäcklund transformations in obtaining N-soliton solutions in wronskian form, J. Phys. A : Math. Gen., V. 17 A, 1415-1424, 1984

[11] D.E. Pelinovsky, Y.A. Stepanyants , New multisolitons of the Kadomtsev-Petviashvili equation, Phys. JETP Lett., V. 57, 24-28, 1993

[12] D.E. Pelinovsky, Rational solutions of the Kadomtsev-Petviashvili hierarchy and the dynamics of their poles. I. New form of a general rational solution, J.Math.Phys., V. 35, 5820-5830, 1994

[13] M.J Ablowitz, J. Villarroel, Solutions to the time dependent schrödinger and the Kadomtsev-Petviashvili equations, Phys. Rev. Lett., V. 78, 570 , 1997

[14] J. Villarroel, M.J Ablowitz, On the discrete spectrum of the nonstationary Schrdinger equation and multipole lumps of the Kadomtsev-Petviashvili I equation, Commun. Math. Phys., V. 207, 1-42, 1999

[15] G. Biondini, Y. Kodama, On a family of solutions of the KadomtsevPetviashvili equation which also satisfy the Toda lattice hierarchy, J. Phys. A: Math. Gen., V. 36, 1051910536, 2003

[16] Y. Kodama, Young diagrams and N solitons solutions to the KP equation, J. Phys. A: Math. Gen., V. 37, 1116911190, 2004

[17] G. Biondini, Line Soliton Interactions of the Kadomtsev-Petviashvili Equation, PRL, V. 99, 064103-1-4, 2007

[18] P. Gaillard, V.B. Matveev, Wronskian addition formula and its applications, Max-Planck-Institut für Mathematik, MPI 02-31, V. **161**, 2002

[19] P. Gaillard, A new family of deformations of Darboux-Pöschl-Teller potentials, Lett. Math. Phys., V. **68**, 77-90, 2004

[20] P. Gaillard, V.B. Matveev, New formulas for the eigenfunctions of the two-particle Calogero-Moser system, Lett. Math. Phys., V. **89**, 1-12, 2009

[21] P. Gaillard, V.B. Matveev, Wronskian and Casorai determinant representations for Darboux-Pöschl-Teller potentials and their difference extensions, RIMS Kyoto, N. 1653, 1-19, 2009

[22] P. Gaillard, V.B. Matveev, Wronskian and Casorai determinant representations for Darboux-Pöschl-Teller potentials and their difference extensions, J. Phys A : Math. Theor., V. **42**, 1-16, 2009

[23] P. Dubard, P. Gaillard, C. Klein, V. B. Matveev, On multi-rogue wave solutions of the NLS equation and positon solutions of the KdV equation, Eur. Phys. J. Spe. Top., V. **185**, 247-258, 2010

[24] P. Gaillard, Families of quasi-rational solutions of the NLS equation and multi-rogue waves, J. Phys. A : Meth. Theor., V. **44**, 1-15, 2011

[25] P. Gaillard, Wronskian representation of solutions of the NLS equation and higher Peregrine breathers, J. Math. Sciences : Adv. Appl., V. **13**, N. 2, 71-153, 2012

[26] P. Gaillard, Degenerate determinant representation of solution of the NLS equation, higher Peregrine breathers and multi-rogue waves, J. Math. Phys., V. **54**, 013504-1-32, 2013

[27] P. Gaillard, Wronskian representation of solutions of NLS equation and seventh order rogue waves, J. Mod. Phys., V. **4**, N. 4, 246-266, 2013

[28] P. Gaillard, V.B. Matveev, Wronskian addition formula and Darboux-Pöschl-Teller potentials, J. Math., V. **2013**, ID 645752, 1-10, 2013

[29] P. Gaillard, Two parameters deformations of ninth Peregrine breather solution of the NLS equation and multi rogue waves, J. Math., V. **2013**, 1-111, 2013

[30] P. Gaillard, Two-parameters determinant representation of seventh order rogue waves solutions of the NLS equation, J. Theor. Appl. Phys., V. **7**, N. **45**, 1-6, 2013

[31] P. Gaillard, Six-parameters deformations of fourth order Peregrine breather solutions of the NLS equation, J. Math. Phys., V. **54**, 073519-1-22, 2013

[32] P. Gaillard, Deformations of third order Peregrine breather solutions of the NLS equation with four parameters, Phys. Rev. E, V. **88**, 042903-1-9, 2013

[33] P. Gaillard, Ten parameters deformations of the sixth order Peregrine breather solutions of the NLS equation, Phys. Scripta, V. **89**, 015004-1-7, 2014

[34] P. Gaillard, The fifth order Peregrine breather and its eight-parameters deformations solutions of the NLS equation, Commun. Theor. Phys., V. **61**, 365-369, 2014

[35] P. Gaillard, Higher order Peregrine breathers, their deformations and multi-rogue waves, J. Of Phys. : Conf. Ser., V. **482**, 012016-1-7, 2014

[36] P. Gaillard, M. Gastineau, Eighteen parameter deformations of the Peregrine breather of order ten solutions of the NLS equation, Int. J. Mod. Phys. C, V. **26**, N. 2, 1550016-1-14, 2014

[37] P. Gaillard, Two parameters wronskian representation of solutions of nonlinear Schrödinger equation, eight Peregrine breather and multi-rogue waves, J. Math. Phys., V. **5**, 093506-1-12, 2014

[38] P. Gaillard, Hierarchy of solutions to the NLS equation and multi-rogue waves, J. Phys. : Conf. Ser., V. **574**, 012031-1-5, 2015

[39] P. Gaillard, Tenth Peregrine breather solution of the NLS, Ann. Phys., V. **355**, 293-298, 2015

[40] P. Gaillard, M. Gastineau, The Peregrine breather of order nine and its deformations with sixteen parameters solutions of the NLS equation Phys. Lett. A, V. **379**, 1309-1313, 2015

[41] P. Gaillard, Other 2N-2 parameters solutions to the NLS equation and 2N+1 highest amplitude of the modulus of the N-th order AP breather, J. Phys. A: Math. Theor., V. **48**, 145203-1-23, 2015

[42] P. Gaillard, Multi-parametric deformations of the Peregrine breather of order N solutions to the NLS equation and multi-rogue waves, Adv. Res., V. **4**, 346-364, 2015

[43] P. Gaillard, Higher order Peregrine breathers solutions to the NLS equation, Jour. Phys. : Conf. Ser., V. **633**, 012106-1-6, 2016

[44] P. Gaillard, M. Gastineau Patterns of deformations of Peregrine breather of order 3 and 4, solutions to the NLS equation with multi-parameters, Journal of Theoretical and Applied Physics, V. **10**,1-7, 2016

[45] P. Gaillard, M. Gastineau Twenty parameters families of solutions to the NLS equation and the eleventh Peregrine breather, Commun. Theor. Phys, V. **65**, 136-144, 2016

[46] P. Gaillard, Rational solutions to the KPI equation and multi rogue waves, Annals Of Physics, V. **367**, 1-5, 2016

[47] P. Gaillard, M. Gastineau Twenty two parameters deformations of the twelfth Peregrine breather solutions to the NLS equation, Adv. Res., V. **10**, 83-89, 2016

[48] P. Gaillard, Towards a classification of the quasi rational solutions to the NLS equation, Theor. And Math. Phys., V. **189**, 1440-1449, 2016

[49] P. Gaillard, Fredholm and Wronskian representations of solutions to the KPI equation and multi-rogue waves, Jour. of Math. Phys., V. **57**, 063505-1-13, doi: 10.1063/1.4953383, 2016

[50] P. Gaillard, M. Gastineau Families of deformations of the thirteenth Peregrine breather solutions to the NLS equation depending on twenty four parameters, Jour. Of Bas. And Appl. Res. Int., V. **21**, N. 3, 130-139, 2017

[51] P. Gaillard, From Fredholm and Wronskian representations to rational solutions to the KPI equation depending on $2N2$ parameters, Int. Jour. of Appl. Sci. And Math., V. **4**, N. 3, 60-70, 2017

Appendix : Because of the length of the complete expression, we only give in this appendix the explicit expression of the rational solution of order 5 to KPI equation without parameters. They can be written as

$$v(x,y,t) = -2\frac{|n(x,y,t)|^2}{(d(x,y,t))^2}$$

with

$$\frac{n(x,y,t)}{d(x,y,t)} = \frac{F(2x,4y,4t) - iH(2x,4y,4t)}{Q(2x,4y,4t)}$$

with

$$\begin{array}{l} F_(X,Y,T) = \sum_{k=0}^{30} f_k(Y,T)X^k, \\ H_(X,Y,T) = \sum_{k=0}^{30} h_k(Y,T)X^k, \\ Q_(X,Y,T) = \sum_{k=0}^{30} q_k(Y,T)X^k. \end{array}$$

$\mathbf{f}_{30} = 1, \quad \mathbf{f}_{29} = -90\,T, \quad \mathbf{f}_{28} = 3915\,T^2 + 15\,Y^2 - 45, \quad \mathbf{f}_{27} = -109620\,T^3 + (-1260\,Y^2 + 5460)T, \mathbf{f}_{26} =$
$2219805\,T^4 + 105\,Y^4 + (51030\,Y^2 - 289170)T^2 - 3150\,Y^2 - 1575, \quad \mathbf{f}_{25} = -34628958\,T^5 + (-1326780\,Y^2 + 9287460)T^3 +$
$(-8190\,Y^4 + 260820\,Y^2 + 77490)T \quad \mathbf{f}_{24} = 432861975\,T^6 + 455\,Y^6 + (24877125\,Y^2 - 207309375)T^4 - 35175\,Y^4 +$
$(307125\,Y^4 - 10347750\,Y^2 - 297675)T^2 + 67725\,Y^2 - 80325 \quad \mathbf{f}_{23} = -4452294600\,T^7 + (-358230600\,Y^2 + 3462895800)T^5 +$
$(-7371000\,Y^4 + 261954000\,Y^2 - 77225400)T^3 + (-32760\,Y^6 + 2583000\,Y^4 - 6388200\,Y^2 + 5027400)T, \quad \mathbf{f}_{22} =$
$38401040925\,T^8 + 1365\,Y^8 + (4119651900\,Y^2 - 45316170900)T^6 - 192780\,Y^6 + (127149750\,Y^4 - 4753444500\,Y^2 +$
$3163094550)T^4 + 1943550\,Y^4 + (1130220\,Y^6 - 90852300\,Y^4 + 279814500\,Y^2 - 169136100)T^2 + 1379700\,Y^2 - 3472875, \quad \mathbf{f}_{21} =$
$-281607633450\,T^9 + (-38842432200\,Y^2 + 479056663800)T^7 + (-1678376700\,Y^4 + 65844009000\,Y^2 - 70879139100)T^5 +$
$(-24864840\,Y^6 + 2037004200\,Y^4 - 7622861400\,Y^2 + 4308406200)T^3 + (-90090\,Y^8 + 12760440\,Y^6 - 133364700\,Y^4 -$
$72160200\,Y^2 + 211519350)T, \quad \mathbf{f}_{20} = 1774128090735\,T^{10} + 3003\,Y^{10} + (305884153575\,Y^2 - 4180416765525)T^8 -$
$654885\,Y^8 + (17622955350\,Y^4 - 723896781300\,Y^2 + 1102112515350)T^6 + 14442750\,Y^6 + (391621230\,Y^6 - 32685310350\,Y^4 +$
$145679168250\,Y^2 - 91054615050)T^4 - 6284250\,Y^4 + (2837835\,Y^8 - 403118100\,Y^6 + 4390970850\,Y^4 + 788640300\,Y^2 -$
$6550139925)T^2 + 55466775\,Y^2 - 59634225, \quad \mathbf{f}_{19} = -9677062313100\,T^{11} + (-2039227690500\,Y^2 + 30588415357500)T^9 +$
$(-151053903000\,Y^4 + 6483698298000\,Y^2 - 12960424877400)T^7 + (-4699454760\,Y^6 + 399453654600\,Y^4 - 2085756334200\,Y^2 +$
$1576774949400)T^5 + (-56756700\,Y^8 + 8085646800\,Y^6 - 92211777000\,Y^4 + 31696434000\,Y^2 + 137638966500)T^3 +$
$(-180180\,Y^{10} + 39015900\,Y^8 - 847513800\,Y^6 + 752787000\,Y^4 - 3105742500\,Y^2 + 2173027500)T, \quad \mathbf{f}_{18} = 45966045987225\,T^{12} +$
$5005\,Y^{12} + (11623597835850\,Y^2 - 189852097985550)T^{10} - 1522290\,Y^{10} + (1076259058875\,Y^4 - 48183290174250\,Y^2 +$
$120557572425675)T^8 + 53961075\,Y^8 + (44644820220\,Y^6 - 3863494057500\,Y^4 + 23308627626900\,Y^2 - 21898019625300)T^6 -$
$248327100\,Y^6 + (808782975\,Y^8 - 115552275300\,Y^6 + 1385054984250\,Y^4 - 1381491814500\,Y^2 - 2152129226625)T^4 +$
$279979875\,Y^4 + (5135130\,Y^{10} - 1104052950\,Y^8 + 23701500900\,Y^6 - 36565735500\,Y^4 + 80147009250\,Y^2 - 24936234750)T^2 +$
$3162300750\,Y^2 + 3524968125, \quad \mathbf{f}_{17} = -190935883331550\,T^{13} + (-57061298466900\,Y^2 + 1008082939581900)T^{11} +$
$(-6457554353250\,Y^4 + 301021379851500\,Y^2 - 911707327688850)T^9 + (-344402898840\,Y^6 + 30333947628600\,Y^4 -$
$208974233853000\,Y^2 + 243008235124200)T^7 + (-8734856130\,Y^8 + 1251548103960\,Y^6 - 15817012325100\,Y^4 + 27698656368600\,Y^2 +$
$25683997326750)T^5 + (-92432340\,Y^{10} + 19730749500\,Y^8 - 420105155400\,Y^6 + 1008423675000\,Y^4 - 122498620650\,Y^2 -$
$146950240500)T^3 + (-270270\,Y^{12} + 81039420\,Y^{10} - 2740396050\,Y^8 + 13812913800\,Y^6 - 18309989250\,Y^4 - 192268282500\,Y^2 -$
$310728048750)T, \quad \mathbf{f}_{16} = 695552146422075\,T^{14} + 6435\,Y^{14} + (242510518484325\,Y^2 - 4607699851202175)T^{12} -$
$2546775\,Y^{12} + (32933527201575\,Y^4 - 1596009395153250\,Y^2 + 5707633598857575)T^{10} + 120860775\,Y^{10} + (2195568480105\,Y^6 -$
$196756713794025\,Y^4 + 1532235106692675\,Y^2 - 2171399870551275)T^8 - 1303717275\,Y^8 + (74246277105\,Y^8 - 10668618894780\,Y^6 +$
$142516507710150\,Y^4 - 367316581823100\,Y^2 - 233903236078575)T^6 + 2575186425\,Y^6 + (1178512335\,Y^{10} - 249753960225\,Y^8 +$
$5293914711750\,Y^6 - 18307533431250\,Y^4 + 11947241194875\,Y^2 + 7339410799875)T^4 + 23261812875\,Y^4 + (6891885\,Y^{12} -$
$2036817090\,Y^{10} + 65683505475\,Y^8 - 379658267100\,Y^6 + 296991835875\,Y^4 + 5306024130750\,Y^2 + 11990293930125)T^2 +$
$134851240125\,Y^2 + 46414974375, \quad \mathbf{f}_{15} = -2225766868550640\,T^{15} + (-895423452865200\,Y^2 + 18206943541592400)T^{13} +$
$(-143709936879600\,Y^4 + 7229715286096800\,Y^2 - 29946939923602800)T^{11} + (-11709698560560\,Y^6 + 1067384061097200\,Y^4 -$
$9313909900218000\,Y^2 + 15794795481771600)T^9 + (-509117328720\,Y^8 + 73365112497600\,Y^6 - 1037922900991200\,Y^4 +$
$3582548274110400\,Y^2 + 1598676194631600)T^7 + (-11313718416\,Y^{10} + 2380232297520\,Y^8 - 50421277418400\,Y^6 +$
$237401051580000\,Y^4 - 73786397806800\,Y^2 - 84105766054800)T^5 + (-110270160\,Y^{12} + 32114063520\,Y^{10} - 987433902000\,Y^8 +$
$6788816798400\,Y^6 + 215286498000\,Y^4 - 78733894428000\,Y^2 - 281497554450000)T^3 + (-308880\,Y^{14} + 119805840\,Y^{12} -$
$5246957520\,Y^{10} + 58975938000\,Y^8 - 11206868400\,Y^6 - 1359946098000\,Y^4 - 9136788822000\,Y^2 - 1877852970000)T, \quad \mathbf{f}_{14} =$
$6259969317798675\,T^{16} + 6435\,Y^{16} + (2878146812781000\,Y^2 - 62359847610255000)T^{14} - 3148200\,Y^{14} + (538912263298500\,Y^4 -$
$28106347270491000\,Y^2 + 132796272634647300)T^{12} + 172386900\,Y^{12} + (52693643522520\,Y^6 - 4884295418818200\,Y^4 +$
$47389913750579400\,Y^2 - 94499857473625800)T^{10} - 3227477400\,Y^{10} + (2863784974050\,Y^8 - 413853643942200\,Y^6 +$
$6209473531495500\,Y^4 - 27032928566931000\,Y^2 - 7792736255214750)T^8 + 514127250\,Y^8 + (84852888120\,Y^{10} -$
$17721199326600\,Y^8 + 376649696833200\,Y^6 - 2311896626298000\,Y^4 + 251203467375000\,Y^2 + 281809220175000)T^6 +$
$126059409000\,Y^6 + (1240539300\,Y^{12} - 355939353000\,Y^{10} + 10435219105500\,Y^8 - 87520569822000\,Y^6 - 67443242422500\,Y^4 +$
$672149733255000\,Y^2 + 4605837252502500)T^4 + 994204732500\,Y^4 + (6949800\,Y^{14} - 2640745800\,Y^{12} + 106033422600\,Y^{10} -$
$1306648665000\,Y^8 - 1706880357000\,Y^6 + 26975963385000\,Y^4 + 291783952215000\,Y^2 + 16749041085000)T^2 - 1834094745000\,Y^2 +$
$637151011875, \quad \mathbf{f}_{13} = -15465806549855550\,T^{17} + (-8058811075786800\,Y^2 + 185352654743096400)T^{15} + (-1741101158349000\,Y^4 +$
$94019462550846000\,Y^2 - 500392472909502600)T^{13} + (-201193911631440\,Y^6 + 18958657057578000\,Y^4 - 203148655154146800\,Y^2 +$

$468926485308615600)T^{11}+(-13364329878900\,Y^8+1936799807065200\,Y^6-30849172375707000\,Y^4+162452308078998000\,Y^2+$
$22283040263431500)T^9+(-509117328720\,Y^{10}+105543938530800\,Y^8-2259793246989600\,Y^6+17468255271852000\,Y^4-$
$154281928122000\,Y^2+4048332872094000)T^7+(-10420530120\,Y^{12}+2945002127760\,Y^{10}-82343470519800\,Y^8+$
$855034516274400\,Y^6+1085528791053000\,Y^4-3326543772678000\,Y^2-56897553479445000)T^5+(-97297200\,Y^{14}+$
$36202042800\,Y^{12}-1322443810800\,Y^{10}+18861219846000\,Y^8+44878935654000\,Y^6-266559270390000\,Y^4-5703139488690000\,Y^2+$
$555591931650000)T^3+(-270270\,Y^{16}+128898000\,Y^{14}-6205134600\,Y^{12}+124663114800\,Y^{10}+169775959500\,Y^8-$
$4380323346000\,Y^6-73132496325000\,Y^4+91524703410000\,Y^2-30811103898750)T, \quad \mathbf{f}_{12}=33509247524687025\,T^{18}+$
$5005\,Y^{18}+(19643351997230325\,Y^2-477988231932604575)T^{16}-2907135\,Y^{16}+(4850210369686500\,Y^4-270865594491723000\,Y^2+$
$1607061242029817700)T^{14}+154998900\,Y^{14}+(653880212802180\,Y^6-62621604995285700\,Y^4+736599340057171500\,Y^2-$
$1941400968274485900)T^{12}-4780925100\,Y^{12}+(52120886527710\,Y^8-7574902175360520\,Y^6+128155418965091700\,Y^4-$
$791457484331896200\,Y^2+14857905645150750)T^{10}+4349031750\,Y^{10}+(2481946977510\,Y^{10}-510708320372250\,Y^8+$
$11059633073771100\,Y^6-104656877241052500\,Y^4-759214678745250\,Y^2-69168108633419250)T^8+273006672750\,Y^8+$
$(67733445780\,Y^{12}-18850738987080\,Y^{10}+502940059958700\,Y^8-6508000174057200\,Y^6-9783511829500500\,Y^4+$
$10591222025475000\,Y^2+556330537356772500)T^6+6770981038500\,Y^6+(948647700\,Y^{14}-345478032900\,Y^{12}+$
$11375513194500\,Y^{10}-197767715008500\,Y^8-599706543082500\,Y^6+1461543260152500\,Y^4+78231597900907500\,Y^2-$
$20886946632877500)T^4-31511548057500\,Y^4+(5270265\,Y^{16}-2448646200\,Y^{14}+101467352700\,Y^{12}-2363397409800\,Y^{10}-$
$6042906686250\,Y^8+39456666459000\,Y^6+2170698639637500\,Y^4-1888506222435000\,Y^2+964379863085625)T^2-$
$14308470736875\,Y^2+3734295665625, \quad \mathbf{f}_{11}=-63491205836249100\,T^{19}+(-41597686582370100\,Y^2+1067673955614165900)T^{17}+$
$(-11640504887247600\,Y^4+671567589648900000\,Y^2-4402797117738188400)T^{15}+(-1810745204682960\,Y^6+176199437224918800\,Y^4-$
$2262916745511231600\,Y^2+6729704197250554800)T^{13}+(-170577446817960\,Y^8+24860569428545760\,Y^6-446869172856178800\,Y^4+$
$3160406449274911200\,Y^2-586382417837634600)T^{11}+(-9927787910040\,Y^{10}+2027559761627400\,Y^8-44585706465846000\,Y^6+$
$504372367396170000\,Y^4-25544526718347000\,Y^2+568325970663633000)T^9+(-348343435440\,Y^{12}+95446101310560\,Y^{10}-$
$2431982406344400\,Y^8+39240598074350400\,Y^6+59668270312014000\,Y^4-64094970017988000\,Y^2-4396907751782238000)T^7+$
$(-6830263440\,Y^{14}+2433500269200\,Y^{12}-71414066178000\,Y^{10}+1583926707963600\,Y^8+5365365599134800\,Y^6-$
$5225697746514000\,Y^4-804708355234518000\,Y^2+359955421399350000)T^5+(-63243180\,Y^{16}+28605376800\,Y^{14}-$
$991038661200\,Y^{12}+29272191026400\,Y^{10}+105160445019000\,Y^8+18931225068000\,Y^6-38676777367410000\,Y^4+$
$25986159479700000\,Y^2-23206285086547500)T^3+(-180180\,Y^{18}+101496780\,Y^{16}-4315323600\,Y^{14}+162771865200\,Y^{12}+$
$127031020200\,Y^{10}+2374196265000\,Y^8-396508029498000\,Y^6+1027745679870000\,Y^4+555612560527500\,Y^2-$
$108307232932500)T, \quad \mathbf{f}_{10}=104760489629811015\,T^{20}+3003\,Y^{20}+(76262425401011850\,Y^2-2059085485827319950)T^{18}-$
$2002770\,Y^{18}+(24008541329948175\,Y^4-1429431614567683650\,Y^2+10277502500089353375)T^{16}+76294575\,Y^{16}+$
$(4268185125324120\,Y^6-421893683541653400\,Y^4+5887311873952509000\,Y^2-19554121103579584200)T^{14}-4912147800\,Y^{14}+$
$(469087978749390\,Y^8-68559012278757000\,Y^6+1309280314393314900\,Y^4-10406077143129649800\,Y^2+3813470318931641550)T^{12}+$
$10569248550\,Y^{12}+(32761700103132\,Y^{10}-6640544597827140\,Y^8+148854719734320600\,Y^6-1972596191699133000\,Y^4+$
$349700116875209100\,Y^2-3142605331140174900)T^{10}-778433222700\,Y^{10}+(1436916671190\,Y^{12}-387525373014780\,Y^{10}+$
$9441816308174250\,Y^8-189331951094886600\,Y^6-264230420830125750\,Y^4+761494344545434500\,Y^2+28178363040208053750)T^8+$
$29737937895750\,Y^8+(37566448920\,Y^{14}-13087572858360\,Y^{12}+337516679780280\,Y^{10}-9923087725551000\,Y^8-$
$35846481921881400\,Y^6+32017478404527000\,Y^4+6364416585166353000\,Y^2-4071513439400085000)T^6-135471713895000\,Y^6+$
$(521756235\,Y^{16}-229572743400\,Y^{14}+6371415458100\,Y^{12}-263085719866200\,Y^{10}-1227127207146750\,Y^8-1167921778023000\,Y^6+$
$472820855487592500\,Y^4-292139535659265000\,Y^2+383042109162076875)T^4-23856827990625\,Y^4+(2972970\,Y^{18}-$
$1622555550\,Y^{16}+51004031400\,Y^{14}-2744365843800\,Y^{12}-8143986734100\,Y^{10}-59552425894500\,Y^8+10890025690005000\,Y^6-$
$16281791651475000\,Y^4+5641166277416250\,Y^2+2522586344591250)T^2-204740671511250\,Y^2-63331122763125, \quad \mathbf{f}_9=$
$-149657842328301450\,T^{21}+(-120414355896334500\,Y^2+3411740083729477500)T^{19}+(-42368014111673250\,Y^4+$
$2600744250855019500\,Y^2-20373800262901088850)T^{17}+(-8536370250648240\,Y^6+856920244391996400\,Y^4-12936026897725654800\,Y^2+$
$47562129682931883600)T^{15}+(-1082510720190900\,Y^8+158657212220799600\,Y^6-3218236241082219000\,Y^4+28310759035056918000\,Y^2-$
$15953699953418944500)T^{13}+(-89350091190360\,Y^{10}+17973114497137800\,Y^8-412234968449631600\,Y^6+6288034865280714000\,Y^4-$
$2325448127608515000\,Y^2+12728001398238945000)T^{11}+(-4789722237300\,Y^{12}+1271118593745000\,Y^{10}-29663935917115500\,Y^8+$
$734900500396062000\,Y^6+883414271111872500\,Y^4-6205097669625855000\,Y^2-145655230334535652500)T^9+(-160999066800\,Y^{14}+$
$54818118154800\,Y^{12}-1220092585311600\,Y^{10}+49143679775190000\,Y^8+189465765082902000\,Y^6-361052590485510000\,Y^4-$
$38986019618668290000\,Y^2+33253517753746290000)T^7+(-3130537410\,Y^{16}+1338906769200\,Y^{14}-27787844561400\,Y^{12}+$
$1791675928904400\,Y^{10}+10571571242536500\,Y^8-17219590507854000\,Y^6-4161285095799195000\,Y^4+2862772152501870000\,Y^2-$
$4339224555567221250)T^5+(-29729700\,Y^{18}+15704142300\,Y^{16}-314729226000\,Y^{14}+30112212942000\,Y^{12}+167721545565000\,Y^{10}-$
$1331258146155000\,Y^8-168618461812290000\,Y^6+158010162826950000\,Y^4-352799273171362500\,Y^2-91536114929962500)T^3+$
$(-90090\,Y^{20}+57957900\,Y^{18}-1242004050\,Y^{16}+152830314000\,Y^{14}+306119047500\,Y^{12}-5426555715000\,Y^{10}-$
$1791315007492500\,Y^8+4317208982730000\,Y^6-5739858578081250\,Y^4+8229374956687500\,Y^2+5060540265243750)T, \quad \mathbf{f}_8=$
$183670988312006325\,T^{22}+1365\,Y^{22}+(162559380460051575\,Y^2-4822594953648196725)T^{20}-1015245\,Y^{20}+(63552021167509875\,Y^4-$
$4018443184591778250\,Y^2+34103970005290953075)T^{18}+2616075\,Y^{18}+(14405124797968905\,Y^6-1468214642869907625\,Y^4+$
$23881914341060789475\,Y^2-96452734419336804075)T^{16}-4022822475\,Y^{16}+(2087699246082450\,Y^8-306838258424220600\,Y^6+$
$6607981760554723500\,Y^4-63539929515767859000\,Y^2+49429683591988439250)T^{14}-5861220750\,Y^{14}+(201037705178310\,Y^{10}-$
$40130218841362650\,Y^8+945166525132038300\,Y^6-16341863250259228500\,Y^4+10243591309068594750\,Y^2-38957437995734963250)T^{12}+$
$1761072090750\,Y^{12}+(12932250040710\,Y^{12}-3376312049089980\,Y^{10}+75636187443466650\,Y^8-2297665683104992200\,Y^6-$
$2304620451411027750\,Y^4+32742056045465266500\,Y^2+60248838096219378375 0)T^{10}+130537527513750\,Y^{10}+(543371850450\,Y^{14}-$
$180719904415050\,Y^{12}+3388868371939050\,Y^{10}-193007004877937250\,Y^8-813754102024190250\,Y^6+29445935713676212 50\,Y^4+$
$18534786240767020 8750\,Y^2-20293608376408539 3750)T^8-431140458813750\,Y^8+(14087418345\,Y^{16}-5851696851000\,Y^{14}+$
$79805111255100\,Y^{12}-9394441030081800\,Y^{10}-68866767670538250\,Y^8+365522698600731000\,Y^6+2681402843043303 7500\,Y^4-$
$23211354865736835000\,Y^2+3519725882197419 5625)T^6+1390602477875625\,Y^6+(200675475\,Y^{18}-102483421425\,Y^{16}+$
$851142127500\,Y^{14}-235019050276500\,Y^{12}-1960332535743750\,Y^{10}+36855573304331250\,Y^8+166025086411857 7500\,Y^6-$
$1093880295215662500\,Y^4+5730126462068596875\,Y^2+1664565183339384375)T^4-1369009669190625\,Y^4+(1216215\,Y^{20}-$
$753741450\,Y^{18}+3105643275\,Y^{16}-2329361307000\,Y^{14}-14170065257250\,Y^{12}+940014064426500\,Y^{10}+35306326654278750\,Y^8-$
$507691040475150 00\,Y^6+1824777501499968 75\,Y^4+7818096088293750\,Y^2-1610407410623156 25)T^2-2793189864740625\,Y^2-$
$238805043159375, \quad \mathbf{f}_7=-191656683456006600\,T^{23}+(-185782149097201800\,Y^2+5759246622013255800)T^{21}+$
$(-80276237264223000\,Y^4+5224130517348666000\,Y^2-47791531590979037400)T^{19}+(-20336646773603160\,Y^6+$
$2104060762345865400\,Y^4-36743695663109589000\,Y^2+161912201196809485800)T^{17}+(-3340318793731920\,Y^8+$
$492311600676181440\,Y^6-11249866673071538400\,Y^4+117015338352785342400\,Y^2-1182427672003672 50000)T^{15}+$

$(-371146532636880\,Y^{10}+73515563195382000\,Y^{8}-1784012727950560800\,Y^{6}+34493006842823340000\,Y^{4}-326886734089695780000\,Y^{2}+$
$909158106401759340000)T^{13}+(-28215818270640\,Y^{12}+7244953952876640\,Y^{10}-156233516018907600\,Y^{8}+5769638535075105600\,Y^{6}+$
$4895310703067694000\,Y^{4}-118967166461166660000\,Y^{2}-1976853696293476350000)T^{11}+(-1448991601200\,Y^{14}+$
$470476426820400\,Y^{12}-7186947677910000\,Y^{10}+599954617828566000\,Y^{8}+2849524975357830000\,Y^{6}-15866381004309990000\,Y^{4}-$
$68412866469830757000\,Y^{2}+934330994134752690000)T^{9}+(-48299720040\,Y^{16}+19468502539200\,Y^{14}-124483369903200\,Y^{12}+$
$38041341374836800\,Y^{10}+339317905030650000\,Y^{8}-2975582608095384000\,Y^{6}-12712976727167430000\,Y^{4}+144536916402731160000\,Y^{2}-$
$212479198864683345000)T^{7}+(-963242280\,Y^{18}+475026635160\,Y^{16}+1809927957600\,Y^{14}+1345071311589600\,Y^{12}+$
$14860180688850000\,Y^{10}-377717578057134000\,Y^{8}-1102922269112235600\,Y^{6}+5603684559677820000\,Y^{4}-54232776209234385000\,Y^{2}-$
$160729832466236250000)T^{5}+(-9729720\,Y^{20}+5800410000\,Y^{18}+80679450600\,Y^{16}+22254237432000\,Y^{14}+214409229930000\,Y^{12}-$
$16734210725988000\,Y^{10}-390822849099270000\,Y^{8}+179200373337720000\,Y^{6}-2869928051307975000\,Y^{4}-10602675553333500000\,Y^{2}+$
$28972032905891250000)T^{3}+(-32760\,Y^{22}+23367960\,Y^{20}+522358200\,Y^{18}+113507389800\,Y^{16}+531763218000\,Y^{14}-$
$181511617770000\,Y^{12}-3865904153370000\,Y^{10}+9039489461730000\,Y^{8}-41811925414455000\,Y^{6}-17819468180325000\,Y^{4}+$
$164388505479975000\,Y^{2}+990563065852500 0)T \quad, \mathbf{f}_6 = 167699598024005775\,T^{24}+455\,Y^{24}+(177337505956419900\,Y^{2}-$
$5733912692590910100)T^{22}-367500\,Y^{22}+(84290049127434150\,Y^{4}-5640949441605208500\,Y^{2}+55378562276724236550)T^{20}-$
$22777650\,Y^{20}+(23726087902537020\,Y^{6}-2491239229766387100\,Y^{4}+46552726954320671700\,Y^{2}-222491371271617142100)T^{18}-$
$2774727900\,Y^{18}+(4384168416773145\,Y^{8}-647957609084113020\,Y^{6}+15699921710107411350\,Y^{4}-175104912906735291900\,Y^{2}+$
$220934406788660676825)T^{16}+2741884425\,Y^{16}+(556719798955320\,Y^{10}-109416852794680200\,Y^{8}+2744445562712910000\,Y^{6}-$
$58628533584322170000\,Y^{4}+781098503770681110000\,Y^{2}-16078522164883812900 0)T^{14}+12029439681000\,Y^{14}+$
$(49377681973620\,Y^{12}-12465965556724680\,Y^{10}+259656024110546700\,Y^{8}-11548527684010153200\,Y^{6}-896973673941522450 0\,Y^{4}+$
$307582771031041779000\,Y^{2}+509116308812219653650 0)T^{12}+180117230674500\,Y^{12}+(3042882362520\,Y^{14}-963969527921400\,Y^{12}+$
$11404531584646200\,Y^{10}-1466075511095995800\,Y^{8}-8031257324623625400\,Y^{6}+59427427516614927000\,Y^{4}+1956173568816684609000\,Y^{2}-$
$3237015906581602005000)T^{10}-691866296415000\,Y^{10}+(126786765105\,Y^{16}-49544366671800\,Y^{14}-49023761163300\,Y^{12}-$
$118455939366395400\,Y^{10}-1256885611874660250\,Y^{8}+14547881692924587000\,Y^{6}+44248482044562489750 0\,Y^{4}-$
$662105241219550275000\,Y^{2}+991786871544567800625)T^{8}+3819394004855625\,Y^{8}+(3371347980\,Y^{18}-1603464966180\,Y^{16}-$
$26211512552400\,Y^{14}-5687867018005200\,Y^{12}-77114001357250200\,Y^{10}+2226307185829125000\,Y^{8}+5045270164354387800 0\,Y^{6}-$
$215972575987385700000\,Y^{4}+344750475679982347500\,Y^{2}+89458449857973157500)T^{6}+1738851217582500\,Y^{6}+(51081030\,Y^{20}-$
$29247164100\,Y^{18}-957796103250\,Y^{16}-143403454782000\,Y^{14}-1804603410004500\,Y^{12}+141393400712865000\,Y^{10}+$
$2687606958260227500\,Y^{8}+16022672171169300000\,Y^{6}+30267088175830668750\,Y^{4}+29603820878454375000\,Y^{2}-385737361602417562500)T^{4}-$
$28527529354931250\,Y^{4}+(343980\,Y^{22}-234885420\,Y^{20}-11408625900\,Y^{18}-1475828594100\,Y^{16}-10174662477000\,Y^{14}+$
$3125540241117000\,Y^{12}+52333674631497000\,Y^{10}+558434590969500 0\,Y^{8}+619464673093297500\,Y^{6}+580371573722062500\,Y^{4}-$
$3199464776942437500\,Y^{2}-18254629662806250 0)T^{2}+7090604658112500\,Y^{2}-657932261765625, \quad \mathbf{f}_5 = -120743710577284158\,T^{25}+$
$(-138785874226763400\,Y^{2}+4672457765634367800)T^{23}+(-722486135378007 00\,Y^{4}+4968481577137986600\,Y^{2}-$
$52135711046008335900)T^{21}+(-22477346433982440\,Y^{6}+2394701908543513800\,Y^{4}-47738049897122739000\,Y^{2}+$
$246162924975055397400)T^{19}+(-4642060676583330\,Y^{8}+687977197709016600\,Y^{6}-17661363672989616300\,Y^{4}+$
$209647795700357040600\,Y^{2}-321181333519747046850)T^{17}+(-668063758746384\,Y^{10}+130272432955544880\,Y^{8}-$
$3387196362964528800\,Y^{6}+79098408897601212000\,Y^{4}-1408603637772286452 00\,Y^{2}+2108563590039149628 00)T^{15}+$
$(-68369098117320\,Y^{12}+16966054655882640\,Y^{10}-342740532358539000\,Y^{8}+18177745004307352800\,Y^{6}+148420708455894210 00\,Y^{4}-$
$569489614737813126000\,Y^{2}-1014277007629441048500 0)T^{13}+(-4979262047760\,Y^{14}+1538081279214480\,Y^{12}-$
$12949342798850640\,Y^{10}+2780861271150690000\,Y^{8}+17812705237030645200\,Y^{6}-159450676712156466000\,Y^{4}-$
$430264669364474477400 0\,Y^{2}+8346629184301336950000)T^{11}+(-253573530210\,Y^{16}+95967828356400\,Y^{14}+818263640363400\,Y^{12}+$
$280619265548437200\,Y^{10}+3465581754780400500\,Y^{8}-47584063798999182000\,Y^{6}-111885418259022775500 0\,Y^{4}+$
$2186430295925466990000\,Y^{2}-3701205029344402361250)T^{9}+(-8669180520\,Y^{18}+3971151538200\,Y^{16}+116565702069600\,Y^{14}+$
$17700494810392800\,Y^{12}+280122977063739600\,Y^{10}-8449461440097678000\,Y^{8}-15805137142771074000 0\,Y^{6}+76006967649032700000\,Y^{4}-$
$151419495265720258500 0\,Y^{2}-2733325421728289850 00)T^{7}+(-183891708\,Y^{20}+100951832520\,Y^{18}+5300099802900\,Y^{16}+$
$638219705608800\,Y^{14}+9613186089280200\,Y^{12}-699729345490366800\,Y^{10}-11625910325562267000\,Y^{8}-17944275064608900000\,Y^{6}-$
$211596760291789687500\,Y^{4}+640635149057170050 00\,Y^{2}+371515557850873222500)T^{5}+(-2063880\,Y^{22}+1346443560\,Y^{20}+$
$102674061000\,Y^{18}+11169530429400\,Y^{16}+99476912430000\,Y^{14}-2448951366317400 0\,Y^{12}-370612284513030000\,Y^{10}-$
$917983615980690000\,Y^{8}-8100680815486665000\,Y^{6}-3386487671262675000\,Y^{4}+38736361360845225000\,Y^{2}+149641708603275000)T^{3}+$
$(-8190\,Y^{24}+6302520\,Y^{22}+622312740\,Y^{20}+63669375000\,Y^{18}-191237731650\,Y^{16}-264197445498000\,Y^{14}-$
$347019502403700 0\,Y^{12}-4050198794250000\,Y^{10}-46635445503281250\,Y^{8}-180897316052985000\,Y^{6}+1010351794809262500\,Y^{4}+$
$199320246412875000\,Y^{2}+31960887204881250)T, \quad \mathbf{f}_4 = 69659833025356245\,T^{26}+105\,Y^{26}+(86741171391727125\,Y^{2}-$
$3035940998710449375)T^{24}-89775\,Y^{24}+(49260418321227750\,Y^{4}-3478543386068236500\,Y^{2}+38875564286523382950)T^{22}-$
$15066450\,Y^{22}+(16858009825486830\,Y^{6}-1821961831139153550\,Y^{4}+38638389376104521850\,Y^{2}-213963126721627005450)T^{20}-$
$1443591450\,Y^{20}+(3868383897152775\,Y^{8}-574901360715320100\,Y^{6}+15623131133724770250\,Y^{4}-196120571193091030500\,Y^{2}+$
$357249431667880686375)T^{18}+29933701875\,Y^{18}+(626309773824735\,Y^{10}-121166852397631425\,Y^{8}+3274507475098237350\,Y^{6}-$
$82793038504310615250\,Y^{4}+1899053653587150768 75\,Y^{2}-1959467312127686681 25)T^{16}+8926947295875\,Y^{16}+$
$(73252605125700\,Y^{12}-17862366019113000\,Y^{10}+351660264940309500\,Y^{8}-22010761791057438000\,Y^{6}-2177332717690100250 0\,Y^{4}+$
$742227813403943895000\,Y^{2}+1529351660866935512250 0)T^{14}+85757994472500\,Y^{14}+(6224077559700\,Y^{14}-1873447345469700\,Y^{12}+$
$9448889660928900\,Y^{10}-4009065097300672500\,Y^{8}-30172397289852730500\,Y^{6}+308113279210457752500\,Y^{4}+7168953774050770747500\,Y^{2}-$
$15694552290887321197500)T^{12}+319944513262500\,Y^{12}+(380360295315\,Y^{16}-139270385053800\,Y^{14}-2260665993177900\,Y^{12}-$
$496161030190656600\,Y^{10}-6994012096222404750\,Y^{8}+107623962307517481000\,Y^{6}+2009636371279438492500\,Y^{4}-$
$5120794944397939905000\,Y^{2}+11081845031052259681875)T^{10}+365571370749375\,Y^{10}+(16254713475\,Y^{18}-7160826467025\,Y^{16}-$
$307093801864500\,Y^{14}-39967614231268500\,Y^{12}-713578985267163750\,Y^{10}+21439681349659571250\,Y^{8}+328428652686529657500\,Y^{6}-$
$302425492990139662500\,Y^{4}+4589978754971499946875\,Y^{2}+3349517618839868437 5)T^{8}+19359580323234375\,Y^{8}+$
$(459729270\,Y^{20}-241534685700\,Y^{18}-17702357774850\,Y^{16}-1963962798462000\,Y^{14}-33839582520712500\,Y^{12}+$
$217710110182414500 0\,Y^{10}+30937958801113927500\,Y^{8}+65969037255332610000\,Y^{6}+946142428337667618750\,Y^{4}-$
$627474771193059562500\,Y^{2}-241832590723675310625 0)T^{6}-127220617667981250\,Y^{6}+(7739550\,Y^{22}-4813404750\,Y^{20}-$
$508408062750\,Y^{18}-52761176165250\,Y^{16}-588223154452500\,Y^{14}+106976379654112500\,Y^{12}+1431965678320642500\,Y^{10}+$
$6194409170655037500\,Y^{8}+6489091380028359375 0\,Y^{6}+7417055730315656250\,Y^{4}-310077666558050343750\,Y^{2}+$
$192921290275868437 50)T^{4}+10894649371593750\,Y^{4}+(61425\,Y^{24}-44925300\,Y^{22}-6196204350\,Y^{20}-614363494500\,Y^{18}+$
$1065570825375\,Y^{16}+2121232109535000\,Y^{14}+23860970644297500\,Y^{12}+126079014649455000\,Y^{10}+1407637708803309375\,Y^{8}-$
$3164401639436625 00\,Y^{6}-1602890906379721875 0\,Y^{4}-42277530900583125 00\,Y^{2}-1561951126772859375)T^{2}+10892434111453125\,Y^{2}+$
$1535175277453125, \quad \mathbf{f}_3 = -30959925789047220\,T^{27}+(-41635762268029020\,Y^{2}+1512766029071721060)T^{25}+$
$(-25701087819771000\,Y^{4}+1862340363555714000\,Y^{2}-22095422899332665400)T^{23}+(-9633148471706760\,Y^{6}+$

$$
\begin{aligned}
&1055941274783241000\,Y^4-2376085339005382620 0\,Y^2+1407123135426764574 00)T^{21}+(-2443189829780700\,Y^8+\\
&364097930530395600\,Y^6-10464540831065601000\,Y^4+13815572162910827400 0\,Y^2-29435986742908778550 0)T^{19}+\\
&(-442101016817460\,Y^{10}+84849387458427900\,Y^8-2389082761771057800\,Y^6+64845921917944251000\,Y^4-186210902122201498500\,Y^2+\\
&1170775712168733195 00)T^{17}+(-58602084100560\,Y^{12}+14037453068395680\,Y^{10}-270815031813236400\,Y^8+1978957635058545120 0\,Y^6+\\
&25936973261357634000\,Y^4-64956357135626972400 0\,Y^2-16858754256969713970000)T^{15}+(-5745302362800\,Y^{14}+\\
&1683962854081200\,Y^{12}-287453949756120 0\,Y^{10}+42442027734996540 00\,Y^8+37476966739910166000\,Y^6-421123999512999510000\,Y^4-\\
&878660754693083901000 0\,Y^2+20788580036720938050000)T^{13}+(-414938503980\,Y^{16}+146824393716000\,Y^{14}+\\
&3542054052423600\,Y^{12}+633781570796287200\,Y^{10}+10027268435092923000\,Y^8-167571317769213204000\,Y^6-2458232115957875250000\,Y^4+\\
&8288597117115905940000\,Y^2-25407633512804927107500)T^{11}+(-21672951300\,Y^{18}+9167658399900\,Y^{16}+522635022630000\,Y^{14}+\\
&63648520172622000\,Y^{12}+1251393053566005000\,Y^{10}-36334383832878075000\,Y^8-418359328797601170000\,Y^6+\\
&1071010025700668550000\,Y^4-9609075229368178462500\,Y^2+42467216133360162375 00)T^9+(-788107320\,Y^{20}+\\
&395468211600\,Y^{18}+37673982397800\,Y^{16}+4103258165496000\,Y^{14}+78830865202698000\,Y^{12}-431563991251453200 0\,Y^{10}-\\
&46808508310830630000\,Y^8-85923371067455880000\,Y^6-2746631166706905975000\,Y^4+2627031222775042650000\,Y^2+\\
&998643496489793752500 0)T^7+(-18574920\,Y^{22}+10986350760\,Y^{20}+1504404203400\,Y^{18}+157772934307800\,Y^{16}+\\
&2172284241246000\,Y^{14}-276544515096486000\,Y^{12}-2944758032950230000\,Y^{10}-16825698104167890000\,Y^8-29521232128812910500 0\,Y^6+\\
&654088543219865250 00\,Y^4+157498897121439142500 0\,Y^2-17529612589591672500 0)T^5+(-245700\,Y^{24}+170326800\,Y^{22}+\\
&30646236600\,Y^{20}+3135052242000\,Y^{18}+6699300898500\,Y^{16}-8509433044140000\,Y^{14}-73346269006710000\,Y^{12}-\\
&650106562060620000\,Y^{10}-1352775052968963750 0\,Y^8+11273569520191650000\,Y^6+150792066611179875000\,Y^4+\\
&400715039642242500 00\,Y^2+18182137489964437500)T^3+(-1260\,Y^{26}+1018500\,Y^{24}+226056600\,Y^{22}+22376957400\,Y^{20}-\\
&407753230500\,Y^{18}-88039851952500\,Y^{16}-182859728310000\,Y^{14}-5922475716150000\,Y^{12}-198206787746992500\,Y^{10}+\\
&773576520674737500\,Y^8+4287672037077975000\,Y^6+834834075555375000\,Y^4+834364440405562500\,Y^2-106146404898187500)T,\quad \mathbf{f}_2=\\
&9951404717908035\,T^{28}+15\,Y^{28}+(14412379246625430\,Y^2-542866284956224530)T^{26}-13230\,Y^{26}+(9637907932414125\,Y^4-\\
&716170697131695750\,Y^2+8993947407022208925)T^{24}-4405275\,Y^{24}+(3940833465698220\,Y^6-438038796764148300\,Y^4+\\
&10433653151449342500\,Y^2-65830964042236976100)T^{22}-460536300\,Y^{22}+(1099435423401315\,Y^8-164295119168791380\,Y^6+\\
&4989309709418140050\,Y^4-68945057216324169300\,Y^2+169557352830226123875)T^{20}+16520466375\,Y^{20}+(221050508408730\,Y^{10}-\\
&42084616023969750\,Y^8+1237262083239363300\,Y^6-35775503385692647500\,Y^4+125753073481149329250\,Y^2-33677535139843722750)T^{18}+\\
&1418063172750\,Y^{18}+(32963672306565\,Y^{12}-7754069993344290\,Y^{10}+147508908045428475\,Y^8-12444975573317387100\,Y^6-\\
&22306597617171727125\,Y^4+344149745922632238750\,Y^2+12811748574445029523125)T^{16}-39670880830875\,Y^{16}+\\
&(3693408661800\,Y^{14}-1053379090902600\,Y^{12}-1672063783803000\,Y^{10}-3111035126418009000\,Y^8-32066045650774485000\,Y^6+\\
&387923615559565785000\,Y^4+7499142630466614855000\,Y^2-18261623152586447235000)T^{14}+43924506255000\,Y^{14}+\\
&(311203877985\,Y^{16}-106288093711800\,Y^{14}-3424946829689700\,Y^{12}-552475107518632200\,Y^{10}-9671533645353536250\,Y^8+\\
&17253590422628177100 0\,Y^6+1891686066598960537500\,Y^4-8821204322605857315000\,Y^2+4069165991684101367062 5)T^{12}+\\
&14332963309363125\,Y^{12}+(19505656170\,Y^{18}-7908793359390\,Y^{16}-567849704045400\,Y^{14}-67763929988525400\,Y^{12}-\\
&1441208664318244500\,Y^{10}+39615837875226553500\,Y^8+260307975087470709000\,Y^6-2479776803701588755000\,Y^4+\\
&13935492198905874896250\,Y^2-20313398648831981568750)T^{10}-10105866264493125 0\,Y^{10}+(886620735\,Y^{20}-423986582250\,Y^{18}-\\
&50282958944925\,Y^{16}-5558255148411000\,Y^{14}-117220242593711250\,Y^{12}+527542348342750650 0\,Y^{10}+30130228135265028750\,Y^8-\\
&68883778317403035000\,Y^6+538884094503980472187 5\,Y^4-6733478711352833606250\,Y^2-24979078901228656640625)T^8-\\
&488787845936315625\,Y^8+(27862380\,Y^{22}-15630795180\,Y^{20}-2665111661100\,Y^{18}-290608727742900\,Y^{16}-4877007740829000\,Y^{14}+\\
&417120212610045000\,Y^{12}+2717050823291385000\,Y^{10}+20775259590910335000\,Y^8+795907087652851177500\,Y^6-\\
&6897722306202543375 00\,Y^4-4833976237453324237500\,Y^2-14952734624156726250 0)T^6-18131461198987500\,Y^6+\\
&(552825\,Y^{24}-362142900\,Y^{22}-81570689550\,Y^{20}-8859278326500\,Y^{18}-68672144543625\,Y^{16}+18292823225775000\,Y^{14}+\\
&113892368365597500\,Y^{12}+1706493116652975000\,Y^{10}+5722395923609918437 5\,Y^8-611493125442782625 00\,Y^6-\\
&547755603079956468750\,Y^4-1536180916946563125 00\,Y^2-790392567786422343 75)T^4-168490471035796875\,Y^4+\\
&(5670\,Y^{26}-4318650\,Y^{24}-1211244300\,Y^{22}-129128636700\,Y^{20}+997668677250\,Y^{18}+361494850043250\,Y^{16}+\\
&648951801435000\,Y^{14}+35380036446615000\,Y^{12}+168608636809286625 0\,Y^{10}-5320233692493693750\,Y^8-34516558396379587500\,Y^6-\\
&315664202621604375 00\,Y^4-446345233850053125 0\,Y^2+1770715027165218750)T^2+78513249904031250\,Y^2+1096553769609375,\quad \mathbf{f}_1=\\
&-2058911320946490\,T^{29}+(-3202750943694540\,Y^2+124907286804087060)T^{27}+(-2313097903779390\,Y^4+176151301903199700\,Y^2-\\
&2335339229777268750)T^{25}+(-1028043512790840\,Y^6+115852595864506200\,Y^4-2914503358762031400\,Y^2+19526104920057712200)T^{23}+\\
&(-314124406686090\,Y^8+47070334171115640\,Y^6-1508873522437820700\,Y^4+21732708059947999800\,Y^2-61018896649561108650)T^{21}+\\
&(-69805423708020\,Y^{10}+13182485784860700\,Y^8-405432829795077000\,Y^6+12403032565939155000\,Y^4-52401552554380018500\,Y^2-\\
&33139392680658285 00)T^{19}+(-11634237284670\,Y^{12}+2686613871429180\,Y^{10}-50743580179266450\,Y^8+488653532511388020 0\,Y^6+\\
&11938423096696650750\,Y^4-84233411545016506500\,Y^2-599833026591495475 2750)T^{17}+(-1477363464720\,Y^{14}+\\
&409684253101200\,Y^{12}+1981165068615600\,Y^{10}+141077599003099080 0\,Y^8+16854596151636776400\,Y^6-216669950191306962000\,Y^4-\\
&399208183256254541400 0\,Y^2+94691971275260795100 00)T^{15}+(-143632559070\,Y^{16}+47288257909200\,Y^{14}+1917625238638200\,Y^{12}+\\
&29413233475650360 0\,Y^{10}+5628878447506303500\,Y^8-10627224411001249800 0\,Y^6-775402029279596565000\,Y^4+\\
&5562214627783561650000\,Y^2-39495548583265682958750)T^{13}+(-10639448820\,Y^{18}+4127287723020\,Y^{16}+360516607239600\,Y^{14}+\\
&43293897822898800\,Y^{12}+982488954554893800\,Y^{10}-25199867496556935000\,Y^8+51219592058341980 00\,Y^6+3146078548665549630000\,Y^4-\\
&13395682909145770852500\,Y^2+41738896972231619107500)T^{11}+(-591080490\,Y^{20}+268714284300\,Y^{18}+38559631776750\,Y^{16}+\\
&4406311608426000\,Y^{14}+100967205534583500\,Y^{12}-3596532612289155000\,Y^{10}+8283091141557067500\,Y^8+285438227257592010000\,Y^6-\\
&699387229397599588125 0\,Y^4+10615157859394072687500\,Y^2+38511345961290620643750)T^9+(-23882040\,Y^{22}+\\
&12670340760\,Y^{20}+2619244366200\,Y^{18}+301243524157800\,Y^{16}+6073941186306000\,Y^{14}-332810940481866000\,Y^{12}-\\
&2068293804004260 00\,Y^{10}-13973328095830110000\,Y^8-126859556895439945500 0\,Y^6+177198653163187687500 0\,Y^4+\\
&789397030512156937500 0\,Y^2+5350377830932756125000)T^7+(-663390\,Y^{24}+409260600\,Y^{22}+112338972900\,Y^{20}+\\
&13119973234200\,Y^{18}+189523707688350\,Y^{16}-19704502964538000\,Y^{14}-116523993143061000\,Y^{12}-3469188882417930000\,Y^{10}-\\
&12467631543625810125 0\,Y^8+111199783316007015000\,Y^6+1373256224986802625 00\,Y^4+142595022806606475000\,Y^2+\\
&1400236560539597812 50)T^5+(-11340\,Y^{26}+8108100\,Y^{24}+2791114200\,Y^{22}+326298634200\,Y^{20}+1723425133500\,Y^{18}-\\
&671297198008500\,Y^{16}-8083387605510000\,Y^{14}-209471375716470000\,Y^{12}-586188645438485250 0\,Y^{10}+10596884905521337500\,Y^8+\\
&46049392314741375000\,Y^6+144099570783459375000\,Y^4+528140170126406250 0\,Y^2-269108649947851875 00)T^3+\\
&(-90\,Y^{28}+74340\,Y^{26}+30740850\,Y^{24}+3486407400\,Y^{22}-29830408650\,Y^{20}-9945196726500\,Y^{18}-190468185216750\,Y^{16}-\\
&4379930772210000\,Y^{14}-101355116492778750\,Y^{12}+588804550073617500\,Y^{10}+2003467220102643750\,Y^8+6215378415257025000\,Y^6+\\
&487999656378281250\,Y^4-993916336773937500\,Y^2-80267735935406250)T,\quad \mathbf{f}_0=205891132094649\,T^{30}+Y^{30}+\\
&(343151886824415\,Y^2-13840459435251405)T^{28}-885\,Y^{28}+(266895911974545\,Y^4-20817881134014510\,Y^2+290649648140279505)T^{26}-\\
&518175\,Y^{26}+(128505439098855\,Y^6-14679275158599975\,Y^4+389223204962878125\,Y^2-2760445107350057925)T^{24}-\\
&64415925\,Y^{24}+(42835146366285\,Y^8-6436255325805900\,Y^6+217569593428138350\,Y^4-3254350820009618700\,Y^2+
\end{aligned}
$$

$10335412390763897325)T^{22}-429932475\,Y^{22}+(10470813556203\,Y^{10}-1961263923796485\,Y^{8}+63206858568347550\,Y^{6}-2033186697332012250\,Y^{4}+10169816108260184775\,Y^{2}+3786939964849193775)T^{20}+253388798775\,Y^{20}+(1939039547445\,Y^{12}-439416192828690\,Y^{10}+8301597810730875\,Y^{8}-901916719268298300\,Y^{6}-2948421838549249125\,Y^{4}+552323211344304750\,Y^{2}+1303979354257921543125)T^{18}+18211006855125\,Y^{18}+(277005649635\,Y^{14}-74628163095255\,Y^{12}-599597131108185\,Y^{10}-298215581578558875\,Y^{8}-4097668234919365575\,Y^{6}+55545795013687972875\,Y^{4}+999721710985825792125\,Y^{2}-2166435029988858785625)T^{16}+308449383834375\,Y^{16}+(30778405515\,Y^{16}-9754386978600\,Y^{14}-479300845193100\,Y^{12}-72167245190875800\,Y^{10}-1494399523818930750\,Y^{8}+29760739595699553000\,Y^{6}+105539541330442432500\,Y^{4}-1578199521254346585000\,Y^{2}+17216540976307279516875)T^{14}+3743615698711875\,Y^{14}+(2659862205\,Y^{18}-985172039775\,Y^{16}-102226874733900\,Y^{14}-12556164497366700\,Y^{12}-300736687607530650\,Y^{10}+7125350615937240750\,Y^{8}-68174890835981737500\,Y^{6}-1658658093774662137500\,Y^{4}+6582591430544280493125\,Y^{2}-32665745021854435194375)T^{12}-35436868535289375\,Y^{12}+(177324147\,Y^{20}-76431254130\,Y^{18}-13010539271625\,Y^{16}-1553071592986200\,Y^{14}-38387575830955050\,Y^{12}+1029379891176119700\,Y^{10}-15748309000883198250\,Y^{8}-203306916362197095000\,Y^{6}+4550541140734269384375\,Y^{4}-6956482828705269851250\,Y^{2}-29626545040779349018125)T^{10}-52818816039688125\,Y^{10}+(8955765\,Y^{22}-4478571405\,Y^{20}-1102058551125\,Y^{18}-134629752192075\,Y^{16}-3214424357628750\,Y^{14}+103810562029770750\,Y^{12}-807910327029566250\,Y^{10}+9547733571385826250\,Y^{8}+974556198963258935625\,Y^{6}-1745591916197984990625\,Y^{4}-6418557660215103440625\,Y^{2}-11235442540726973559375)T^{8}-563834403599709375\,Y^{8}+(331695\,Y^{24}-191974860\,Y^{22}-63053637570\,Y^{20}-7958263729500\,Y^{18}-173242248242175\,Y^{16}+7843508909649000\,Y^{14}+85127427323158500\,Y^{12}+3648345623804385000\,Y^{10}+121688209685624990625\,Y^{8}-59428033675926457500\,Y^{6}+1884557279168523618750\,Y^{4}-891729638488792687500\,Y^{2}+1382422320605279559375)T^{6}-139776269093015625\,Y^{6}+(8505\,Y^{26}-5684175\,Y^{24}-2355289650\,Y^{22}-303985114650\,Y^{20}-5591003788125\,Y^{18}+432409451803875\,Y^{16}+15141752275072500\,Y^{14}+382740986155342500\,Y^{12}+8467495805148699375\,Y^{10}-5924076200578265625\,Y^{8}+73786990917167718750\,Y^{6}-306531770539276406250\,Y^{4}-23337276008993296875\,Y^{2}+173618454896021953125)T^{4}+269971538077828125\,Y^{4}+(135\,Y^{28}-103950\,Y^{26}-52071075\,Y^{24}-6714773100\,Y^{22}-90754459425\,Y^{20}+15220863960750\,Y^{18}+873166093120125\,Y^{16}+18866959714575000\,Y^{14}+311002510450708125\,Y^{12}-773569625941271250\,Y^{10}-1879021817045690625\,Y^{8}-25514053093507387500\,Y^{6}-23384115469406671875\,Y^{4}+4485144165797531250\,Y^{2}+20395900114734375)T^{2}+13377955989234375\,Y^{2}-219310753921875.$

$\mathbf{h}_{30}=0,\quad \mathbf{h}_{29}=0,\quad \mathbf{h}_{28}=60\,Y,\quad \mathbf{h}_{27}=-5040\,TY,\quad \mathbf{h}_{26}=204120\,T^{2}Y+840\,Y^{3}-2520\,Y,\quad \mathbf{h}_{25}=-5307120\,T^{3}Y+(-65520\,Y^{3}+257040\,Y)T,\quad \mathbf{h}_{24}=99508500\,T^{4}Y+5460\,Y^{5}-96600\,Y^{3}+(2457000\,Y^{3}-11907000\,Y)T^{2}-81900\,Y,\quad \mathbf{h}_{23}=-1432922400\,T^{5}Y+(-58968000\,Y^{3}+340200000\,Y)T^{3}+(-393120\,Y^{5}+7358400\,Y^{3}+4687200\,Y)T,\quad \mathbf{h}_{22}=16478607600\,T^{6}Y+21840\,Y^{7}-882000\,Y^{5}+(1017198000\,Y^{3}-6807402000\,Y)T^{4}+831600\,Y^{3}+(13562640\,Y^{5}-267775200\,Y^{3}-90946800\,Y)T^{2}-3855600\,Y,\quad \mathbf{h}_{21}=-155369728800\,T^{7}Y+(-13427013600\,Y^{3}+102251872800\,Y)T^{5}+(-298378080\,Y^{5}+6197083200\,Y^{3}-194594400\,Y)T^{3}+(-1441440\,Y^{7}+58655520\,Y^{5}-74642400\,Y^{3}+247816800\,Y)T,\quad \mathbf{h}_{20}=1223536614300\,T^{8}Y+60060\,Y^{9}-4047120\,Y^{7}+(140983642800\,Y^{3}-1203783411600\,Y)T^{6}+24713640\,Y^{5}+(4699454760\,Y^{5}-102424014000\,Y^{3}+47701823400\,Y)T^{4}-5821200\,Y^{3}+(45405360\,Y^{7}-1861619760\,Y^{5}+3210656400\,Y^{3}-8307910800\,Y)T^{2}-152806500\,Y,\quad \mathbf{h}_{19}=-8156910762000\,T^{9}Y+(-1208431224000\,Y^{3}+11433618504000\,Y)T^{7}+(-56393457120\,Y^{5}+128692761120 0\,Y^{3}-1228773823200\,Y)T^{5}+(-908107200\,Y^{7}+37511812800\,Y^{5}-86143176000\,Y^{3}+190416744000\,Y)T^{3}+(-3603600\,Y^{9}+238392000\,Y^{7}-1491285600\,Y^{5}+984312000\,Y^{3}+9549414000\,Y)T,\quad \mathbf{h}_{18}=46494391343400\,T^{10}Y+120120\,Y^{11}-11411400\,Y^{9}+(8610072471000\,Y^{3}-89412291045000\,Y)T^{8}+154350000\,Y^{7}+(535737842640\,Y^{5}-12775287016800\,Y^{3}+19055424603600\,Y)T^{6}-200566800\,Y^{5}+(12940527600\,Y^{7}-538525033200\,Y^{5}+1607611698000\,Y^{3}-3261827394000\,Y)T^{4}-406161000\,Y^{3}+(102702600\,Y^{9}-6667768800\,Y^{7}+43826756400\,Y^{5}-51570540000\,Y^{3}-299274507000\,Y)T^{2}-2385369000\,Y,\quad \mathbf{h}_{17}=-228245193867600\,T^{11}Y+(-51660434826000\,Y^{3}+584160301494000\,Y)T^{9}+(-4132834786080\,Y^{5}+102791019038400\,Y^{3}-212792613818400\,Y)T^{7}+(-139757698080\,Y^{7}+5859072727200\,Y^{5}-22196715055200\,Y^{3}+43339546303200\,Y)T^{5}+(-1848646800\,Y^{9}+117744580800\,Y^{7}-832242146400\,Y^{5}+1441001016000\,Y^{3}+6192044838000\,Y)T^{3}+(-6486480\,Y^{11}+592930800\,Y^{9}-7837754400\,Y^{7}+14755154400\,Y^{5}+46699254000\,Y^{3}+120522654000\,Y)T,\quad \mathbf{h}_{16}=970042073937300\,T^{12}Y+180180\,Y^{13}-21538440\,Y^{11}+(263468217612600\,Y^{3}-3222418969261800\,Y)T^{10}+469305900\,Y^{9}+(26346821761260\,Y^{5}-682315127663400\,Y^{3}+1832381801088300\,Y)T^{8}-2353503600\,Y^{7}+(1187940433680\,Y^{7}-50167638314640\,Y^{5}+235968167962800\,Y^{3}-455944830087600\,Y)T^{6}-4399636500\,Y^{5}+(23570246700\,Y^{9}-1472233870800\,Y^{7}+11412666606600\,Y^{5}-25946472258000\,Y^{3}-92176486636500\,Y)T^{4}+26397819000\,Y^{3}+(165405240\,Y^{11}-14525973000\,Y^{9}+190828839600\,Y^{7}-483343232400\,Y^{5}-2284179345000\,Y^{3}-3204923841000\,Y)T^{2}+126898852500\,Y,\quad \mathbf{h}_{15}=-3581693811460800\,T^{13}Y+(-1149679495036800\,Y^{3}+15122707203945600\,Y)T^{11}+(-140516382726720\,Y^{5}+3783133381104000\,Y^{3}-12611227861108800\,Y)T^{9}+(-8145877259520\,Y^{7}+346513086501120\,Y^{5}-1984916735020800\,Y^{3}+3854481012345600\,Y)T^{7}+(-226274368320\,Y^{9}+13854953629440\,Y^{7}-119644591812480\,Y^{5}+330748111814400\,Y^{3}+1016622803448000\,Y)T^{5}+(-2646483840\,Y^{11}+222915369600\,Y^{9}-2967012115200\,Y^{7}+9572059526400\,Y^{5}+52195271184000\,Y^{3}+58675981392000\,Y)T^{3}+(-8648640\,Y^{13}+975300480\,Y^{11}-20216347200\,Y^{9}+106770182400\,Y^{7}+556542705600\,Y^{5}-934080336000\,Y^{3}-8946538776000\,Y)T,\quad \mathbf{h}_{14}=11512587251124000\,T^{14}Y+205920\,Y^{15}-28274400\,Y^{13}+(4311298106388000\,Y^{3}-60689811805308000\,Y)T^{12}+824191200\,Y^{11}+(632323722270240\,Y^{5}-17672637366014400\,Y^{3}+70877356360826400\,Y)T^{10}-8130780000\,Y^{9}+(45820559584800\,Y^{7}-1963234745287200\,Y^{5}+13467933475164000\,Y^{3}-26494216568316000\,Y)T^{8}-47621196000\,Y^{7}+(1697057762400\,Y^{9}-101823465744000\,Y^{7}+990865619150400\,Y^{5}-3152771466768000\,Y^{3}-8370340328196000\,Y)T^{6}+166745628000\,Y^{5}+(29772943200\,Y^{11}-2400920676000\,Y^{9}+33064378200000\,Y^{7}-129924135432000\,Y^{5}-668838813300000\,Y^{3}-709945587540000\,Y)T^{4}+3067005060000\,Y^{3}+(194594400\,Y^{13}-20627006400\,Y^{11}+411884676000\,Y^{9}-2370867408000\,Y^{7}-15208430076000\,Y^{5}+2184696360000\,Y^{3}+274047939900000\,Y)T^{2}+1485279180000\,Y,\quad \mathbf{h}_{13}=-32235244303147200\,T^{15}Y+(-13928809266792000\,Y^{3}+208932139001880000\,Y)T^{13}+(-2414326939577280\,Y^{5}+69953575428777600\,Y^{3}-329729232701131200\,Y)T^{11}+(-213829278062400\,Y^{7}+9227555768692800\,Y^{5}-74713146002712000\,Y^{3}+149448721649976000\,Y)T^{9}+(-10182346574400\,Y^{9}+598408675603200\,Y^{7}-6613833224073600\,Y^{5}+23262995478240000\,Y^{3}+50974727447448000\,Y)T^{7}+(-250092722880\,Y^{11}+19269964929600\,Y^{9}-280607601456000\,Y^{7}+1292453335555200\,Y^{5}+5146445349864000\,Y^{3}+5542623817416000\,Y)T^{5}+(-2724321600\,Y^{13}+270336528000\,Y^{11}-5290613496000\,Y^{9}+34296097248000\,Y^{7}+195047995464000\,Y^{5}+320120171280000\,Y^{3}-4943519206920000\,Y)T^{3}+(-8648640\,Y^{15}+1094385600\,Y^{13}-29484907200\,Y^{11}+301485240000\,Y^{9}+1776048120000\,Y^{7}-2000376000\,Y^{5}-170822108520000\,Y^{3}-78344726040000\,Y)T,\quad \mathbf{h}_{12}=78573407988921300\,T^{16}Y+180180\,Y^{17}-26056800\,Y^{15}+(38801682957492000\,Y^{3}-617842182476988000\,Y)T^{14}+864183600\,Y^{13}+(7846562553626160\,Y^{5}-235396876608784800\,Y^{3}+1280511771920362800\,Y)T^{12}-14926615200\,Y^{11}+(833934184443360\,Y^{7}-36244062631576800\,Y^{5}+342000491235530400\,Y^{3}-696568312313546400\,Y)T^{10}-47584341000\,Y^{9}+(49638939550200\,Y^{9}-2856148214119200\,Y^{7}+36025885150491600\,Y^{5}-135905216949684000\,Y^{3}-220047998283477000\,Y)T^{8}-162459108000\,Y^{7}+(1625602698720\,Y^{11}-119419275175200\,Y^{9}+1878390270993600\,Y^{7}-9808892925249600\,Y^{5}-22141848885156000\,Y^{3}-32027867107236000\,Y)T^{6}+22556739870000\,Y^{5}+(26562135600\,Y^{13}-2455975922400\,Y^{11}+48173126274000\,Y^{9}-360525575592000\,Y^{7}-1404565842078000\,Y^{5}-$

$8404158018060000\,Y^3 + 60525769205790000\,Y)T^4 - 4865914620000\,Y^3 + (168648480\,Y^{15} - 19524304800\,Y^{13} +$
$490546173600\,Y^{11} - 5658666804000\,Y^9 - 26319756708000\,Y^7 - 222646849740000\,Y^5 + 4111457808780000\,Y^3 +$
$1567269591300000\,Y)T^2 + 17840228332500\,Y, \quad \mathbf{h}_{11} = -166390746329480400\,T^{17}Y + (-93124039097980800\,Y^3 +$
$1568781889419830400\,Y)T^{15} + (-21728942456195520\,Y^5 + 674154368512732800\,Y^3 - 4171012214961009600\,Y)T^{13} +$
$(-2729239149087360\,Y^7 + 119456698140823680\,Y^5 - 1299187815456585600\,Y^3 + 2694598806041251200\,Y)T^{11} +$
$(-198555758200800\,Y^9 + 11180216538691200\,Y^7 - 161332655638190400\,Y^5 + 637978578571152000\,Y^3 + 570248470704276000\,Y)T^9 +$
$(-8360242450560\,Y^{11} + 584145145584000\,Y^9 - 10124422119302400\,Y^7 + 58246381175673600\,Y^5 + 18105308872560000\,Y^3 +$
$232351318980144000\,Y)T^7 + (-191247376320\,Y^{13} + 16388429016960\,Y^{11} - 331136584833600\,Y^9 + 2896965327110400\,Y^7 +$
$6244863813720000\,Y^5 + 129317255074224000\,Y^3 - 540557215654680000\,Y)T^5 + (-2023781760\,Y^{15} + 212497084800\,Y^{13} -$
$5061408508800\,Y^{11} + 71653531824000\,Y^9 + 301403891376000\,Y^7 + 6779398287312000\,Y^5 - 60532077891600000\,Y^3 -$
$8216684446320000\,Y)T^3 + (-6486480\,Y^{17} + 836922240\,Y^{15} - 24353784000\,Y^{13} + 526537065600\,Y^{11} + 1322105652000\,Y^9 +$
$59419740240000\,Y^7 - 1023330349944000\,Y^5 - 107840270160000\,Y^3 - 972790350210000\,Y)T, \quad \mathbf{h}_{10} = 305049701604047400\,T^{18}Y +$
$120120\,Y^{19} - 16548840\,Y^{17} + (192068330639585400\,Y^3 - 3412906490595709800\,Y)T^{16} + 488890080\,Y^{15} + (51218221503889440\,Y^5 -$
$1641609663586200000\,Y^3 + 11414468862580845600\,Y)T^{14} - 21772346400\,Y^{13} + (7505407659990240\,Y^7 - 330815276090339040\,Y^5 +$
$4106717638852701600\,Y^3 - 8668745847288727200\,Y)T^{12} - 6882246000\,Y^{11} + (655234002062640\,Y^9 - 36088272728988480\,Y^7 +$
$596168406827753760\,Y^5 - 2428234027504084800\,Y^3 + 50055414863454000\,Y)T^{10} - 5440951278000\,Y^9 + (34486000108560\,Y^{11} -$
$2285802827708400\,Y^9 + 44437383951760800\,Y^7 - 274922553639333600\,Y^5 + 420662488039794000\,Y^3 - 2429174247417918000\,Y)T^8 +$
$92067448284000\,Y^7 + (1051860569760\,Y^{13} - 83016072659520\,Y^{11} + 1783492119208800\,Y^9 - 18223766338377600\,Y^7 -$
$25255310905994400\,Y^5 - 1396985405890536000\,Y^3 + 3695432633748324000\,Y)T^6 - 106330986468000\,Y^5 + (16696199520\,Y^{15} -$
$1573295724000\,Y^{13} + 36498260383200\,Y^{11} - 672135718716000\,Y^9 - 4063833237996000\,Y^7 - 107311625793540000\,Y^5 +$
$622016572135140000\,Y^3 - 189452805432660000\,Y)T^4 + 67073857515000\,Y^3 + (107026920\,Y^{17} - 12140694720\,Y^{15} +$
$309045391200\,Y^{13} - 9645679713600\,Y^{11} - 70780518522000\,Y^9 - 2220330772296000\,Y^7 + 21865238892252000\,Y^5 -$
$2515162761720000\,Y^3 + 29812467440385000\,Y)T^2 + 89623095975000\,Y, \quad \mathbf{h}_9 = -481657423585338000\,T^{19}Y + (-338944112893386000\,Y^3 +$
$6335647648699446000\,Y)T^{17} + (-102436443007778880\,Y^5 + 3388282345641916800\,Y^3 - 26213794102810036800\,Y)T^{15} +$
$(-17320171523054400\,Y^7 + 768749151446337600\,Y^5 - 10799671984987032000\,Y^3 + 23180566621956408000\,Y)T^{13} +$
$(-1787001823807200\,Y^9 + 96223175128080000\,Y^7 - 1818691673595451200\,Y^5 + 7526678046071184000\,Y^3 - 870401178992545200 0\,Y)T^{11} +$
$(-114953333695200\,Y^{11} + 7206689766276000\,Y^9 - 159570453402360000\,Y^7 + 1040756085080712000\,Y^5 - 3088318719786300000\,Y^3 +$
$2164110348914514000 0\,Y)T^9 + (-4507973870400\,Y^{13} + 325267653110400\,Y^{11} - 7690193607096000\,Y^9 + 90688875365088000\,Y^7 +$
$191505475404936000\,Y^5 + 10963308751773840000\,Y^3 - 20358971517213000000\,Y)T^7 + (-100177197120\,Y^{15} + 8360942990400\,Y^{13} -$
$196733950459200\,Y^{11} + 4803047088840000\,Y^9 + 49366644041736000\,Y^7 + 1094577615912312000\,Y^5 - 4783618921316760000\,Y^3 +$
$4413344842874520000\,Y)T^5 + (-1070269200\,Y^{17} + 104721724800\,Y^{15} - 2349489240000\,Y^{13} + 116309417616000\,Y^{11} +$
$1825837558020000\,Y^9 + 37096510928400000\,Y^7 - 280210439660760000\,Y^5 + 1583282601180000000\,Y^3 - 4428442765750500000\,Y)T^3 +$
$(-3603600\,Y^{19} + 419958000\,Y^{17} - 9104961600\,Y^{15} + 788941944000\,Y^{13} + 12599654004000\,Y^{11} + 357321211380000\,Y^9 -$
$3933889432200000\,Y^7 + 4226564444760000\,Y^5 - 10971899829450000\,Y^3 - 4839647182650000\,Y)T, \quad \mathbf{h}_8 = 650237521840206300\,T^{20}Y +$
$60060\,Y^{21} - 6791400\,Y^{19} + (508416169340079000\,Y^3 - 9972778706286165000\,Y)T^{18} + 50179500\,Y^{17} + (172861497575626860\,Y^5 -$
$5895020301938044200\,Y^3 + 50317727229079209900\,Y)T^{16} - 30115864800\,Y^{15} + (33403187937319200\,Y^7 - 1492865553198650400\,Y^5 +$
$23553140641257276000\,Y^3 - 51353313650908668000\,Y)T^{14} - 942355701000\,Y^{13} + (4020754103566200\,Y^9 - 211553523603021600\,Y^7 +$
$4568236675022638800\,Y^5 - 19004882784238260000\,Y^3 + 48364028847330651000\,Y)T^{12} - 24006440934000\,Y^{11} +$
$(310374000977040\,Y^{11} - 18343899288514800\,Y^9 + 468580477040676000\,Y^7 - 3171137513421477600\,Y^5 + 11861718275945538000\,Y^3 -$
$13731327865831375800 0\,Y)T^{10} + 298588802715000\,Y^9 + (15214411812600\,Y^{13} - 994788464670000\,Y^{11} + 26815489481781000\,Y^9 -$
$358089091748388000\,Y^7 - 1613367396737019000\,Y^5 - 6335471274828003000 0\,Y^3 + 95735025380141595000\,Y)T^8 -$
$687054141900000\,Y^7 + (450797387040\,Y^{15} - 32769502365600\,Y^{13} + 826977985495200\,Y^{11} - 26286541655220000\,Y^9 -$
$425701980500580000\,Y^7 - 7731992874432204000\,Y^5 + 28658263905907020000\,Y^3 - 47077002957979260000\,Y)T^6 +$
$1830657223867500\,Y^5 + (7224317100\,Y^{17} - 594246391200\,Y^{15} + 12119492322000\,Y^{13} - 981093982428000\,Y^{11} -$
$24410946788235000\,Y^9 - 367218523391580000\,Y^7 + 2446729986276450000\,Y^5 - 27475358146425000000\,Y^3 + 34272509051851875000\,Y)T^4 -$
$34920938902500 0\,Y^3 + (48648600\,Y^{19} - 4636585800\,Y^{17} + 62900258400\,Y^{15} - 13590125892000\,Y^{13} - 406892981502000\,Y^{11} -$
$5953201491510000\,Y^9 + 70677009780300000\,Y^7 - 534502017491400000\,Y^5 + 1473591045543750000\,Y^3 + 1492042263720750000\,Y)T^2 -$
$1266622455262500\,Y, \quad \mathbf{h}_7 = -743128596388807200\,T^{21}Y + (-642209898113784000\,Y^3 + 13190003292029256000\,Y)T^{19} +$
$(-244039761283237920\,Y^5 + 8572678793795793600\,Y^3 - 80145432639490125600\,Y)T^{17} + (-53445100699710720\,Y^7 +$
$2405029531486982400\,Y^5 - 42324408592578604800\,Y^3 + 93639180103559596800\,Y)T^{15} + (-7422930652737600\,Y^9 +$
$381424436617593600\,Y^7 - 9391102820502076800\,Y^5 + 38939850917083872000\,Y^3 - 164243503452717864000\,Y)T^{13} +$
$(-677179638495360\,Y^{11} + 37592151726729600\,Y^9 - 1119615739917292800\,Y^7 + 7765345102358188800\,Y^5 - 28182319095529872000\,Y^3 +$
$622008697713884208000\,Y)T^{11} + (-40571764833600\,Y^{13} + 2378129600246400\,Y^{11} - 75680527346424000\,Y^9 + 1119514013890272000\,Y^7 +$
$9538764448070088000\,Y^5 + 27205033858439976000 0\,Y^3 - 39761979712959924000 0\,Y)T^9 + (-1545591041280\,Y^{15} +$
$95707752940800\,Y^{13} - 2778783962169600\,Y^{11} + 110035641016224000\,Y^9 + 2533405784722848000\,Y^7 + 39001700627215200000\,Y^5 -$
$135819748301741280000\,Y^3 + 320027061178591200000\,Y)T^7 + (-34676722080\,Y^{17} + 2311781472000\,Y^{15} - 46281042057600\,Y^{13} +$
$5912387434195200\,Y^{11} + 197438241983976000\,Y^9 + 2407506822207648000\,Y^7 - 15133040576866800000\,Y^5 + 27053126671828320000\,Y^3 -$
$93445244553868200 00\,Y)T^5 + (-389188800\,Y^{19} + 28829908800\,Y^{17} - 143602502400\,Y^{15} + 139722643872000\,Y^{13} +$
$5622336229104000\,Y^{11} + 54662260287600000\,Y^9 - 732292016450400000\,Y^7 + 2680498639022400000\,Y^5 - 2598792981246000000\,Y^3 -$
$1553832915679800000\,Y)T^3 + (-1441440\,Y^{21} + 123076800\,Y^{19} + 1615269600\,Y^{17} + 956489990400\,Y^{15} + 43717645944000\,Y^{13} +$
$295089180624000\,Y^{11} - 10492642245960000\,Y^9 + 6234366126240000\,Y^7 - 10047643601940000\,Y^5 - 56026080923400000\,Y^3 +$
$57571446397500000\,Y)T, \quad \mathbf{h}_6 = 709350023825679600\,T^{22}Y + 21840\,Y^{23} - 1459920\,Y^{21} + (674320393019473200\,Y^3 -$
$14471953050187155600\,Y)T^{20} - 125067600\,Y^{19} + (284713054830444240\,Y^5 - 10293471982331445600\,Y^3 + 104739172127340181200\,Y)T^{18} -$
$31705959600\,Y^{17} + (70146694668370320\,Y^7 - 3178184858436162960\,Y^5 + 62006244332554897200\,Y^3 - 139059690475964756400\,Y)T^{16} -$
$1915582284000\,Y^{15} + (11134395979106400\,Y^9 - 558432782952105600\,Y^7 + 15640306127550619200\,Y^5 - 64190646579514896000\,Y^3 +$
$398610856564180092000\,Y)T^{14} + 9014694444000\,Y^{13} + (1185064367366880\,Y^{11} - 61532188305588000\,Y^9 + 2155632571720555200\,Y^7 -$
$15179195856028276800\,Y^5 + 37227014548230780000\,Y^3 - 205092500546575933200 0\,Y)T^{12} + 709438349340000\,Y^{11} +$
$(85200706150560\,Y^{13} - 4417328918882880\,Y^{11} + 171631758162664800\,Y^9 - 2752078138124515200\,Y^7 - 38556673251080292000\,Y^5 -$
$871539680876096232000\,Y^3 + 1430270119015409700000\,Y)T^{10} - 237749688540000\,Y^9 + (4057176483360\,Y^{15} - 207540181648800\,Y^{13} +$
$7522243087312800\,Y^{11} - 350665630032564000\,Y^9 - 10597945583409156000\,Y^7 - 142104516736548492000\,Y^5 + 505959450022334700000\,Y^3 -$
$1512534343392592380000\,Y)T^8 + 429538238010000\,Y^7 + (121368527280\,Y^{17} - 6199130931840\,Y^{15} + 141560608392000\,Y^{13} -$
$25698901685385600\,Y^{11} - 1048042343925612000\,Y^9 - 10947020473010160000\,Y^7 + 65475859945926024000\,Y^5 - 181750858318769040000\,Y^3 -$
$87637173359225490000\,Y)T^6 + 7941855288150000\,Y^5 + (2043241200\,Y^{19} - 107977438800\,Y^{17} - 501179918400\,Y^{15} -$

$$928436513256000\,Y^{13}-43962300358956000\,Y^{11}-339273836492220000\,Y^{9}+4426622578619640000\,Y^{7}-1947326218515720000\,Y^{5}-$$
$$8004663131305050000\,Y^{3}+13909832269429950000\,Y)T^{4}-27332174983050000\,Y^{3}+(15135120\,Y^{21}-873180000\,Y^{19}-$$
$$38640596400\,Y^{17}-12999433910400\,Y^{15}-677780398764000\,Y^{13}-2106017856936000\,Y^{11}+128418933221460000\,Y^{9}+$$
$$1440488560946400000\,Y^{7}-9280557666891 0000\,Y^{5}+15863625551025000 00\,Y^{3}-60398979123735000 0\,Y)T^{2}-3820880690550000\,Y, \quad \mathbf{h}_5 =$$
$$-555143496907053600\,T^{23}Y+(-577988908302405600\,Y^{3}+12938059408923079200\,Y)T^{21}+(-269728157207789280\,Y^{5}+$$
$$10028354562853704000\,Y^{3}-110448718821858463200\,Y)T^{19}+(-74272970825333280\,Y^{7}+3387990130724818080\,Y^{5}-$$
$$72876673599910639200\,Y^{3}+165511861874509298400\,Y)T^{17}+(-13361275174927680\,Y^{9}+653674693173384960\,Y^{7}-$$
$$20773748702392398720\,Y^{5}+83907070526262009600\,Y^{3}-71808053628032416800 0\,Y)T^{15}+(-1640858354815680\,Y^{11}+$$
$$79308153816091200\,Y^{9}-3292671514690454400\,Y^{7}+23376917271968668800\,Y^{5}-1541298023563032000\,Y^{3}+496381460133496442400 0\,Y)T^{13}+$$
$$(-139419337337280\,Y^{13}+6284594744588160\,Y^{11}-308085861769358400\,Y^{9}+5252092180763500800\,Y^{7}+109253945161344715200\,Y^{5}+$$
$$207590119634405188800 0\,Y^{3}-420186892230845359200 0\,Y)T^{11}+(-8114352966720\,Y^{15}+327695023656000\,Y^{13}-$$
$$16253214858619200\,Y^{11}+842786533229256000\,Y^{9}+31583540743009416000\,Y^{7}+373214611288504440000\,Y^{5}-1449647920912406040000\,Y^{3}+$$
$$5135371023251934360000\,Y)T^{9}+(-312090498720\,Y^{17}+11075211544320\,Y^{15}-366012911779200\,Y^{13}+80679852732729600\,Y^{11}+$$
$$3795242202563112000\,Y^{9}+34888117519525536000\,Y^{7}-191403575032409712000\,Y^{5}+892313966733729120000\,Y^{3}+$$
$$1162296924054221340000\,Y)T^{7}+(-7355668320\,Y^{19}+232552283040\,Y^{17}+4044485934720\,Y^{15}+4133857819190400\,Y^{13}+$$
$$215751419642808000\,Y^{11}+1480079148577848000\,Y^{9}-14890681469919024000\,Y^{7}+30688187810869008000\,Y^{5}+$$
$$79504895805918660000\,Y^{3}-189497180398585500000\,Y)T^{5}+(-90810720\,Y^{21}+2724321600\,Y^{19}+314373376800\,Y^{17}+$$
$$97948544198400\,Y^{15}+5364302299272000\,Y^{13}+14753257090992000\,Y^{11}-689103017016120000\,Y^{9}-1309038653008800000\,Y^{7}-$$
$$2816316572994540000\,Y^{5}-2606124184253100000 0\,Y^{3}+21672687449385000 000\,Y)T^{3}+(-393120\,Y^{23}+12529440\,Y^{21}+$$
$$3055600800\,Y^{19}+732223346400\,Y^{17}+41934225009600\,Y^{15}-210441555576000\,Y^{13}-10817315273016000\,Y^{11}-$$
$$37468552763880000\,Y^{9}-51721876885140000\,Y^{7}-634782261633660000\,Y^{5}+4939073121213000 00\,Y^{3}+223766085116700000\,Y)T, \quad \mathbf{h}_4 =$$
$$346964685566908500\,T^{24}Y+5460\,Y^{25}+25200\,Y^{23}+(394083346569822000\,Y^{3}-9185173385435082000\,Y)T^{22}-$$
$$87053400\,Y^{21}+(202296117905841960\,Y^{5}-7728749119992423600\,Y^{3}+91686148555217970600\,Y)T^{20}-20265714000\,Y^{19}+$$
$$(61894142354444400\,Y^{7}-2842369460431023600\,Y^{5}+67072907482213122000\,Y^{3}-154122906855121218000\,Y)T^{18}-$$
$$1112607940500\,Y^{17}+(12526195476494700\,Y^{9}-597403168878978000\,Y^{7}+21487621054592536200\,Y^{5}-85001124308869314000\,Y^{3}+$$
$$96088851613718437950 0\,Y)T^{16}+16441233228000\,Y^{15}+(1758062523016800\,Y^{11}-78662028273444000\,Y^{9}+3896532363248280000\,Y^{7}-$$
$$27752999657789448000\,Y^{5}-101067512224410900000\,Y^{3}-8763298036639815060000\,Y)T^{14}+343497065310000\,Y^{13}+$$
$$(174274171671600\,Y^{13}-6676041345573600\,Y^{11}+427209367193154000\,Y^{9}-7618494941831592000\,Y^{7}-218912699412193374000\,Y^{5}-$$
$$362647687714779726000\,Y^{3}+9462196733729421150000\,Y)T^{12}+2910832133580000\,Y^{11}+(12171529450080\,Y^{15}-$$
$$360464526021600\,Y^{13}+27322202780056800\,Y^{11}-1501123926109500000\,Y^{9}-66972173500712844000\,Y^{7}-695255889889793988000\,Y^{5}+$$
$$3094424712352132740000\,Y^{3}-12607027327873620180000\,Y)T^{10}+10266682898587500\,Y^{9}+(585169685100\,Y^{17}-$$
$$11643376298400\,Y^{15}+792242127810000\,Y^{13}-181283921685468000\,Y^{11}-9479329208738235000\,Y^{9}-76705655063291100000\,Y^{7}+$$
$$357001010822062530000\,Y^{5}-3204036256969138500000\,Y^{3}-6268896973351617412500\,Y)T^{8}+80049458969550000\,Y^{7}+$$
$$(18389170800\,Y^{19}-190964466000\,Y^{17}-10016568475200\,Y^{15}-12473518580712000\,Y^{13}-692107880824332000\,Y^{11}-$$
$$4407908436022140000\,Y^{9}+22462641432819000000\,Y^{7}-243671386119887880000\,Y^{5}-323563119670132650000\,Y^{3}+$$
$$1842263577164281950000\,Y)T^{6}-101650312916775000\,Y^{5}+(340540200\,Y^{21}-785862000\,Y^{19}-1310067675000\,Y^{17}-$$
$$447430672584000\,Y^{15}-24944441173470000\,Y^{13}-80773877634660000\,Y^{11}+1453441883213250000\,Y^{9}-1204055069805000000\,Y^{7}+$$
$$48323492127645525000\,Y^{5}+265075582779992250000\,Y^{3}+1951502407241625000\,Y)T^{4}-30942753644250000\,Y^{3}+$$
$$(2948400\,Y^{23}+9147600\,Y^{21}-26409726000\,Y^{19}-6771629970000\,Y^{17}-364319479188000\,Y^{15}+1196459892180000\,Y^{13}+$$
$$45310691808900000\,Y^{11}+232342897254300000\,Y^{9}+3296933269449750000\,Y^{7}+9932226945187050000\,Y^{5}-5004963818835750000\,Y^{3}+$$
$$201287397417750000\,Y)T^{2}-7895187141187500\,Y, \quad \mathbf{h}_3 = -166543049072116080\,T^{25}Y+(-205608702558168000\,Y^{3}+$$
$$4982057023524840000\,Y)T^{23}+(-115597781660481120\,Y^{5}+4534989895911182400\,Y^{3}-57696437946829096800\,Y)T^{21}+$$
$$(-39091037276491200\,Y^{7}+1807208723320862400\,Y^{5}-46571640318947016000\,Y^{3}+108182395433461608000\,Y)T^{19}+$$
$$(-8842020336349200\,Y^{9}+410813867934993600\,Y^{7}-16681439528324776800\,Y^{5}+64358214148582200000\,Y^{3}-932948950892889546000\,Y)T^{17}+$$
$$(-1406450018413440\,Y^{11}+57880827680860800\,Y^{9}-3443141224633824000\,Y^{7}+24516907720060089600\,Y^{5}+214577598455618832000\,Y^{3}+$$
$$1101529735088647636800 0\,Y)T^{15}+(-160868466158400\,Y^{13}+5073543932688000\,Y^{11}-440650227528504000\,Y^{9}+$$
$$8115202892516832000\,Y^{7}+305688141030302856000\,Y^{5}+451502491127427432000 0\,Y^{3}-15400255474334855880000\,Y)T^{13}+$$
$$(-13278032127360\,Y^{15}+250239836246400\,Y^{13}-34247858987260800\,Y^{11}+1920953228468400000\,Y^{9}+99040608611728560000\,Y^{7}+$$
$$886901856300217296000\,Y^{5}-4714587739153892880000\,Y^{3}+22016752510238090640000\,Y)T^{11}+(-780226246800\,Y^{17}+$$
$$3360974601600\,Y^{15}-1333904155416000\,Y^{13}+284449974543504000\,Y^{11}+16113203705041380000\,Y^{9}+111195588535572240000\,Y^{7}-$$
$$376788105499138200000\,Y^{5}+8080999576859286000000\,Y^{3}+18067694766213975750000\,Y)T^{9}+(-31524292800\,Y^{19}-$$
$$341917329600\,Y^{17}+7245737452800\,Y^{15}+25213759867296000\,Y^{13}+1455239242696176000\,Y^{11}+8486309100512880000\,Y^{9}+$$
$$11242032333386400000\,Y^{7}+97331792101466832000 0\,Y^{5}+2704206462755490000 00\,Y^{3}-10263022676045004600000\,Y)T^{7}+$$
$$(-817296480\,Y^{21}-20746756800\,Y^{19}+3030998292000\,Y^{17}+1271660970182400\,Y^{15}+71431552607688000\,Y^{13}+$$
$$275727431013552000\,Y^{11}+1087253675270280000\,Y^{9}+40162923010274400000\,Y^{7}-339004100996478540000\,Y^{5}-$$
$$1545479396363359800000\,Y^{3}-577642018787190000 0\,Y)T^{5}+(-11793600\,Y^{23}-449064000\,Y^{21}+109449144000\,Y^{19}+$$
$$32285592360000\,Y^{17}+1678207824720000\,Y^{15}-1432809317520000\,Y^{13}+7650177963120000\,Y^{11}+545906111058000000\,Y^{9}-$$
$$33115966881543000000\,Y^{7}-100723377185613000000\,Y^{5}+261086897610630000 00\,Y^{3}-49236619994667000000\,Y)T^{3}+$$
$$(-65520\,Y^{25}-3124800\,Y^{23}+1141005600\,Y^{21}+291239928000\,Y^{19}+12915784854000\,Y^{17}-150867024336000\,Y^{15}+$$
$$679177661400000\,Y^{13}+6531807749040000\,Y^{11}-741058330279050000\,Y^{9}-1565231758259400000\,Y^{7}+2651747909901300000\,Y^{5}-$$
$$9460755787770000 00\,Y^{3}+450318081386250000\,Y)T, \quad \mathbf{h}_2 = 57649516986501720\,T^{26}Y+840\,Y^{27}+88200\,Y^{25}+$$
$$(771032634593130 00\,Y^{3}-193944362701502700 0\,Y)T^{24}-24570000\,Y^{23}+(47290001588378640\,Y^{5}-1903725704968063200\,Y^{3}+$$
$$25874273611541149200\,Y)T^{22}-6698235600\,Y^{21}+(17590966774421040\,Y^{7}-818656530655748400\,Y^{5}+22943500219407171600\,Y^{3}-$$
$$53836354223716755600\,Y)T^{20}-198707985000\,Y^{19}+(4421010168174600\,Y^{9}-199965690683589600\,Y^{7}+9144227378857258800\,Y^{5}-$$
$$34280060491862892000\,Y^{3}+623464627876627509000\,Y)T^{18}+5338396287000\,Y^{17}+(791128135357560\,Y^{11}-29718018417918600\,Y^{9}+$$
$$2137520177910154800\,Y^{7}-15180633766376038800\,Y^{5}-232600397925076713000\,Y^{3}-936233670597738603300 0\,Y)T^{16}-$$
$$182739348540000\,Y^{15}+(103415442530400\,Y^{13}-2561520961137600\,Y^{11}+317824100169156000\,Y^{9}-5985169941755088000\,Y^{7}-$$
$$284242826741751612000\,Y^{5}-3793883573061633240000\,Y^{3}+16908842306184772860000\,Y)T^{14}-2096839131660000\,Y^{13}+$$
$$(9958524095520\,Y^{15}-80434233079200\,Y^{13}+29941221405866400\,Y^{11}-1670296846640436000\,Y^{9}-97321815609810372000\,Y^{7}-$$
$$724028313142624140000\,Y^{5}+4807457447882363820000\,Y^{3}-26093252921707698300000\,Y)T^{12}+60168130732395000\,Y^{11}+$$
$$(702203622120\,Y^{17}+7922297275200\,Y^{15}+1572998611010400\,Y^{13}-296207844207508800\,Y^{11}-17830172319253434000\,Y^{9}-$$
$$96493122705542472000\,Y^{7}+145925978792374620000\,Y^{5}-13365124470122213880000\,Y^{3}-26654142504000064095000\,Y)T^{10}+$$
$$119968081009875000\,Y^{9}+(35464829400\,Y^{19}+1137602604600\,Y^{17}+13998439375200\,Y^{15}-32734885716036000\,Y^{13}-$$

$1937262236199822000\,Y^{11}-9704350494609750000\,Y^{9}-95255799199161300000\,Y^{7}-2099620909250886420000\,Y^{5}+$
$2658491017123424175000\,Y^{3}+31792336082807701275000\,Y)T^{8}-408044335415850000\,Y^{7}+(1225944720\,Y^{21}+65069373600\,Y^{19}-$
$3734802010800\,Y^{17}-2201730533251200\,Y^{15}-124598369090412000\,Y^{13}-560145821620392000\,Y^{11}-10847252665187820000\,Y^{9}-$
$138706759309219920000\,Y^{7}+1388723202715803570000\,Y^{5}+5139836318374625700000\,Y^{3}-4467396033213277500000\,Y)T^{6}+$
$256154960580750000\,Y^{5}+(26535600\,Y^{23}+1938459600\,Y^{21}-231972174000\,Y^{19}-84079875474000\,Y^{17}-4397919939252000\,Y^{15}-$
$10701856570860000\,Y^{13}-480334470906780000\,Y^{11}-5038378212060900000\,Y^{9}+15511307303894535000\,Y^{7}+50421178783610145000\,Y^{5}+$
$73644498000722250000\,Y^{3}+63519507979138575000\,Y)T^{4}-100005703788375000\,Y^{3}+(294840\,Y^{25}+26762400\,Y^{23}-$
$5142387600\,Y^{21}-1518682284000\,Y^{19}-68780749779000\,Y^{17}+214513749576000\,Y^{15}-11549215844460000\,Y^{13}-$
$120429406472760000\,Y^{11}+623645250144052500\,Y^{9}+1998918493540290000\,Y^{7}+5752587533175000\,Y^{5}+13561007365174500000\,Y^{3}-$
$2483235729316125000\,Y)T^{2}+12281402219625000\,Y, \quad \mathbf{h}_1=-12811003774778160\,T^{27}Y+(-18504783230235120\,Y^{3}+$
$482547808849977360\,Y)T^{25}+(-12336522153490080\,Y^{5}+509276940182539200\,Y^{3}-7368699578603882400\,Y)T^{23}+$
$(-5025990506977440\,Y^{7}+235448324519173920\,Y^{5}-7149032161340882400\,Y^{3}+16933194660168712800\,Y)T^{21}+$
$(-1396108474160400\,Y^{9}+61428772863057600\,Y^{7}-3156122873256847200\,Y^{5}+11458047744364536000\,Y^{3}-25712232280073476200\,Y)T^{19}+$
$(-279221694832080\,Y^{11}+9486378093654000\,Y^{9}-831423275513863200\,Y^{7}+5880831956337592800\,Y^{5}+13753070545229631000\,Y^{3}+$
$48322623783728267820\,Y)T^{17}+(-41366177012160\,Y^{13}+744591186218880\,Y^{11}-142862286783988800\,Y^{9}+2730744302239699200\,Y^{7}+$
$15868718537840834400\,Y^{5}+192861951834399019200\,Y^{3}-1116281397621890556000\,Y)T^{15}+(-4596241890240\,Y^{15}-$
$12374497396800\,Y^{13}-16209466635499200\,Y^{11}+884002220321976000\,Y^{9}+5721401931755378400\,Y^{7}+32972943456793216800\,Y^{5}-$
$29209692211442442000\,Y^{3}+188770283490553405200\,Y)T^{13}+(-383020157520\,Y^{17}-10292439104640\,Y^{15}-$
$1128079181880000\,Y^{13}+184055274401846400\,Y^{11}+1159155138447406800\,Y^{9}+3957056155010952000\,Y^{7}+7133006472955322400\,Y^{5}+$
$12890374408497040560000\,Y^{3}+14780105310040936110000\,Y)T^{11}+(-23643219600\,Y^{19}-1260365475600\,Y^{17}-$
$31421342836800\,Y^{15}+24693233169528000\,Y^{13}+148304945188990800\,Y^{11}+556624805293746000\,Y^{9}+1332367212053530800\,Y^{7}+$
$2383797850728822360000\,Y^{5}-9453523853059331850000\,Y^{3}-55321414856217905850000\,Y)T^{9}+(-1050809760\,Y^{21}-$
$84873096000\,Y^{19}+1955277727200\,Y^{17}+2128002634195200\,Y^{15}+121995639154872000\,Y^{13}+649494592317648000\,Y^{11}+$
$18927704315270520000\,Y^{9}+183415160328734880000\,Y^{7}-3093092043717522420000\,Y^{5}-9948657906877221000000\,Y^{3}+$
$1910894939947734300000\,Y)T^{7}+(-31842720\,Y^{23}-3439830240\,Y^{21}+233786800800\,Y^{19}+113781129688800\,Y^{17}+$
$6231969961560000\,Y^{15}+43798278528648000\,Y^{13}+1211139761476680000\,Y^{11}+8839351975812120000\,Y^{9}-366985618162912980000\,Y^{7}-$
$108645508978942950000\,Y^{5}-1045191903468533100000\,Y^{3}-2895193855711376100000\,Y)T^{5}+(-589680\,Y^{25}-$
$78926400\,Y^{23}+9448941600\,Y^{21}+3429184248000\,Y^{19}+178486906374000\,Y^{17}+1527744876336000\,Y^{15}+36197453842200000\,Y^{13}+$
$127641292052400000\,Y^{11}-21659653787017050000\,Y^{9}-74507130257603400000\,Y^{7}-100365773943840300000\,Y^{5}-$
$77632497916281000000\,Y^{3}+55531396877780250000\,Y)T^{3}+(-5040\,Y^{27}-791280\,Y^{25}+146210400\,Y^{23}+44367976800\,Y^{21}+$
$2165002182000\,Y^{19}+21374803422000\,Y^{17}+307256896296000\,Y^{15}-3906824344920000\,Y^{13}-500728726806210000\,Y^{11}-$
$1212609265191450000\,Y^{9}-1394108018043300000\,Y^{7}+3342285256520700000\,Y^{5}+2085286397654250000\,Y^{3}+305280569459250000\,Y)T, \quad \mathbf{h}_0=$
$1372607547297660\,T^{28}Y+60\,Y^{29}+14280\,Y^{27}+(2135167295796360\,Y^{3}-57649516986501720\,Y)T^{26}-2622060\,Y^{25}+$
$(1542065269186260\,Y^{5}-65241222927111000\,Y^{3}+1001749322944458900\,Y)T^{24}-844225200\,Y^{23}+(685362341860560\,Y^{7}-$
$32317470427732560\,Y^{5}+1059412019975996400\,Y^{3}-2531359449571906800\,Y)T^{22}-62099446500\,Y^{21}+(209416271124060\,Y^{9}-$
$8956572826536720\,Y^{7}+515899180588294440\,Y^{5}-1808097155986237200\,Y^{3}+49410780668344273500\,Y)T^{20}-1950322941000\,Y^{19}+$
$(46536949138680\,Y^{11}-1414007300752200\,Y^{9}+152429661587876400\,Y^{7}-1072930515550966800\,Y^{5}-35364802605798393000\,Y^{3}-$
$1145511079099572969000\,Y)T^{18}+15589233796500\,Y^{17}+(7756158189780\,Y^{13}-87107622746760\,Y^{11}+30095249748057900\,Y^{9}-$
$580741711672978800\,Y^{7}-40336381312723559700\,Y^{5}-447957615028165893000\,Y^{3}+3342012307029573124500\,Y)T^{16}+$
$831325259772000\,Y^{15}+(984908976480\,Y^{15}+13258390068000\,Y^{13}+4077075476728800\,Y^{11}-215034614357724000\,Y^{9}-$
$15249510580479084000\,Y^{7}-58976165558634660000\,Y^{5}+794453293383133860000\,Y^{3}-6299917076943049140000\,Y)T^{14}+$
$24411465931852500\,Y^{13}+(95755039380\,Y^{17}+4065906287520\,Y^{15}+366266373706800\,Y^{13}-51677838550346400\,Y^{11}-$
$3359497847343813000\,Y^{9}-2229735374457444000\,Y^{7}-55441979884545282000\,Y^{5}-5465746279540528380000\,Y^{3}+$
$2018444757614804452500\,Y)T^{12}+29863844597475000\,Y^{11}+(7092965880\,Y^{19}+528698764440\,Y^{17}+18249854001120\,Y^{15}-$
$8231186515053600\,Y^{13}-497604528853110000\,Y^{11}-977237339729742000\,Y^{9}-64184028758026884000\,Y^{7}-1147086793581178212000\,Y^{5}+$
$9670649590939153635000\,Y^{3}+46128299717400945975000\,Y)T^{10}+119014886217937500\,Y^{9}+(394053660\,Y^{21}+42739666200\,Y^{19}-$
$59645394900\,Y^{17}-880557158527200\,Y^{15}-51605024956821000\,Y^{13}-346736165789286000\,Y^{11}-11419482457917765000\,Y^{9}-$
$84797127731364300000\,Y^{7}+2999698552619600107500\,Y^{5}+8947293896735121375000\,Y^{3}-5188671943455794062500\,Y)T^{8}-$
$634204420519950000\,Y^{7}+(15921360\,Y^{23}+2276754480\,Y^{21}-80886632400\,Y^{19}-62650104577200\,Y^{17}-3709921076920800\,Y^{15}-$
$48739940386452000\,Y^{13}-1051122212832132000\,Y^{11}-6373029049255260000\,Y^{9}+359700788114790570000\,Y^{7}+$
$677780785159128630000\,Y^{5}+2139737253253453350000\,Y^{3}+1113030888713008650000\,Y)T^{6}-471845093328787500\,Y^{5}+$
$(442260\,Y^{25}+78246000\,Y^{23}-5821162200\,Y^{21}-2841367410000\,Y^{19}-175989954892500\,Y^{17}-3557400808500000\,Y^{15}-$
$49673624386050000\,Y^{13}-38056228226100000\,Y^{11}+28945718175276787500\,Y^{9}+78126695870532750000\,Y^{7}+189045582782942025000\,Y^{5}-$
$87871217621276250000\,Y^{3}-252780206699400187500\,Y)T^{4}-13451059573875000\,Y^{3}+(7560\,Y^{27}+1580040\,Y^{25}-$
$193309200\,Y^{23}-74160046800\,Y^{21}-4940837433000\,Y^{19}-133691736465000\,Y^{17}-795619119708000\,Y^{15}+22679177884020000\,Y^{13}+$
$1347083235295875000\,Y^{11}+4240509697224675000\,Y^{9}+9977905356114150000\,Y^{7}-10909947072020850000\,Y^{5}-$
$21082807979139375000\,Y^{3}-4844135932626375000\,Y)T^{2}+4386215078437500\,Y.$

$\mathbf{q}_{30}=-90\,T, \quad \mathbf{q}_{29}=-90\,T, \quad \mathbf{q}_{28}=3915\,T^{2}+15\,Y^{2}+15, \quad \mathbf{q}_{27}=-109620\,T^{3}+(-1260\,Y^{2}+420)T, \quad \mathbf{q}_{26}=$
$2219805\,T^{4}+105\,Y^{4}+(51030\,Y^{2}-85050)T^{2}-630\,Y^{2}+945, \quad \mathbf{q}_{25}=-34628958\,T^{5}+(-1326780\,Y^{2}+3980340)T^{3}+$
$(-8190\,Y^{4}+64260\,Y^{2}-58590)T, \quad \mathbf{q}_{24}=432861975\,T^{6}+455\,Y^{6}+(24877125\,Y^{2}-107800875)T^{4}-7875\,Y^{4}+$
$(307125\,Y^{4}-2976750\,Y^{2}+2537325)T^{2}+4725\,Y^{2}+64575, \quad \mathbf{q}_{23}=-4452294600\,T^{7}+(-358230600\,Y^{2}+2029973400)T^{5}+$
$(-7371000\,Y^{4}+85050000\,Y^{2}-90833400)T^{3}+(-32760\,Y^{6}+617400\,Y^{4}-642600\,Y^{2}-4195800)T, \quad \mathbf{q}_{22}=38401040925\,T^{8}+$
$1365\,Y^{8}+(4119651900\,Y^{2}-28837563300)T^{6}-39900\,Y^{6}+(127149750\,Y^{4}-1701850500\,Y^{2}+2458880550)T^{4}+$
$103950\,Y^{4}+(1130220\,Y^{6}-23039100\,Y^{4}+39860100\,Y^{2}+136363500)T^{2}+548100\,Y^{2}+3709125, \quad \mathbf{q}_{21}=-281607633450\,T^{9}+$
$(-38842432200\,Y^{2}+323686935000)T^{7}+(-1678376700\,Y^{4}+25562968200\,Y^{2}-49189347900)T^{5}+(-24864840\,Y^{6}+$
$545113800\,Y^{4}-1425778200\,Y^{2}-2771836200)T^{3}+(-90090\,Y^{8}+2670360\,Y^{6}-9733500\,Y^{4}-40257000\,Y^{2}-$
$232857450)T, \quad \mathbf{q}_{20}=1774128090735\,T^{10}+3003\,Y^{10}+(305884153575\,Y^{2}-2956880151225)T^{8}-114345\,Y^{8}+$
$(17622955350\,Y^{4}-300945852900\,Y^{2}+744230960550)T^{6}+859950\,Y^{6}+(391621230\,Y^{6}-9188036550\,Y^{4}+33615247050\,Y^{2}+$
$36176442750)T^{4}+4035150\,Y^{4}+(2837835\,Y^{8}-85280580\,Y^{6}+426733650\,Y^{4}+1218879900\,Y^{2}+7225465275)T^{2}+$
$34827975\,Y^{2}+133656075, \quad \mathbf{q}_{19}=-9677062313100\,T^{11}+(-2039227690500\,Y^{2}+22431504595500)T^{9}+(-151053903000\,Y^{4}+$
$2858404626000\,Y^{2}-8777393717400)T^{7}+(-4699454760\,Y^{6}+117486369000\,Y^{4}-567470950200\,Y^{2}-259313027400)T^{5}+$
$(-56756700\,Y^{8}+1728896400\,Y^{6}-11529945000\,Y^{4}-19837062000\,Y^{2}-147652753500)T^{3}+(-180180\,Y^{10}+6583500\,Y^{8}-$
$63592200\,Y^{6}-162729000\,Y^{4}-2502454500\,Y^{2}-7265254500)T, \quad \mathbf{q}_{18}=45966045987225\,T^{12}+5005\,Y^{12}+(11623597835850\,Y^{2}-$

$143357706642150)T^{10} - 200970\,Y^{10} + (1076259058875\,Y^4 - 22353072761250\,Y^2 + 82805716206675)T^8 + 3649275\,Y^8 + (44644820220\,Y^6 - 1184804844300\,Y^4 + 7236492347700\,Y^2 - 369958824900)T^6 + 220500\,Y^6 + (808782975\,Y^8 - 24968582100\,Y^6 + 215430374250\,Y^4 + 167299303500\,Y^2 + 2255342079375)T^4 + 277333875\,Y^4 + (5135130\,Y^{10} - 179729550\,Y^8 + 2244557700\,Y^6 + 3391510500\,Y^4 + 89180453250\,Y^2 + 190647938250)T^2 + 959505750\,Y^2 + 1115785125,$ $\mathbf{q}_{17} = -190935883331550\,T^{13} + (-57061298466900\,Y^2 + 779837745714300)T^{11} + (-6457554353250\,Y^4 + 146040075373500\,Y^2 - 637509635150850)T^9 + (-344402898840\,Y^6 + 9669773698200\,Y^4 - 72272775544200\,Y^2 + 36573828669000)T^7 + (-8734856130\,Y^8 + 273244217400\,Y^6 - 2970054693900\,Y^4 - 13438240200\,Y^2 - 27800198669250)T^5 + (-92432340\,Y^{10} + 3092928300\,Y^8 - 49806981000\,Y^6 - 57919617000\,Y^4 - 2030375686500\,Y^2 - 3236840554500)T^3 + (-270270\,Y^{12} + 9688140\,Y^{10} - 233122050\,Y^8 - 345303000\,Y^6 - 22167857250\,Y^4 - 65315848500\,Y^2 + 14547377250)T,$ $\mathbf{q}_{16} = 695552146422075\,T^{14} + 6435\,Y^{14} + (242510518484325\,Y^2 - 3637657777264875)T^{12} - 204435\,Y^{12} + (32933527201575\,Y^4 - 805604742315450\,Y^2 + 4066023935271375)T^{10} + 10174815\,Y^{10} + (2195568480105\,Y^6 - 65022604987725\,Y^4 + 579696166093275\,Y^2 - 541685929164975)T^8 + 42170625\,Y^8 + (74246277105\,Y^8 - 2353035859020\,Y^6 + 31489767177750\,Y^4 - 19781700403500\,Y^2 + 289330527665025)T^6 + 2030639625\,Y^6 + (1178512335\,Y^{10} - 37621739925\,Y^8 + 775679728950\,Y^6 + 957694893750\,Y^4 + 32898822208875\,Y^2 + 40532346327375)T^4 + 7693410375\,Y^4 + (6891885\,Y^{12} - 217359450\,Y^{10} + 7091880075\,Y^8 + 25663950900\,Y^6 + 690946837875\,Y^4 + 2326499799750\,Y^2 - 2785590556875)T^2 - 27357820875\,Y^2 + 24214372875,$ $\mathbf{q}_{15} = -2225766868550640\,T^{15} + (-895423452865200\,Y^2 + 14625249730131600)T^{13} + (-143709936879600\,Y^4 + 3780676800986400\,Y^2 - 21722309689878000)T^{11} + (-11709698560560\,Y^6 + 364802147463600\,Y^4 - 3801344116323600\,Y^2 + 5129179073802000)T^9 + (-509117328720\,Y^8 + 16343971680960\,Y^6 - 264064561336800\,Y^4 + 303975087595200\,Y^2 - 2587336325758800)T^7 + (-11313718416\,Y^{10} + 343762982640\,Y^8 - 8995662295200\,Y^6 - 13910071744800\,Y^4 - 404340187381200\,Y^2 - 410101956104400)T^5 + (-110270160\,Y^{12} + 3002741280\,Y^{10} - 135469681200\,Y^8 - 812993025600\,Y^6 - 13849198398000\,Y^4 - 56230426476000\,Y^2 + 96537883806000)T^3 + (-308880\,Y^{14} + 7373520\,Y^{12} - 578022480\,Y^{10} - 5866182000\,Y^8 - 88199118000\,Y^6 - 723921786000\,Y^4 + 2153904858000\,Y^2 - 1157431842000)T,$ $\mathbf{q}_{14} = 6259969317798675\,T^{16} + 6435\,Y^{16} + (2878146812781000\,Y^2 - 50847260359131000)T^{14} - 59400\,Y^{14} + (538912263298500\,Y^4 - 15172452951327000\,Y^2 + 97974249467667300)T^{12} + 21035700\,Y^{12} + (52693643522520\,Y^6 - 1722676807467000\,Y^4 + 20637756269915400\,Y^2 - 36268975558204200)T^{10} + 451672200\,Y^{10} + (2863784974050\,Y^8 - 93109726848600\,Y^6 + 1786027202347500\,Y^4 - 2836148447727000\,Y^2 + 19835779480445250)T^8 + 2902331250\,Y^8 + (84852888120\,Y^{10} - 2447679465000\,Y^8 + 80578388746800\,Y^6 + 160217472366000\,Y^4 + 3924855698463000\,Y^2 + 3606189371883000)T^6 + 79622109000\,Y^6 + (1240539300\,Y^{12} - 28436977800\,Y^{10} + 1812516709500\,Y^8 + 15152729130000\,Y^6 + 211473469777500\,Y^4 + 1001803839435000\,Y^2 - 1913433139957500)T^4 - 319613647500\,Y^4 + (6949800\,Y^{14} - 111018600\,Y^{12} + 15472182600\,Y^{10} + 238682619000\,Y^8 + 3101833035000\,Y^6 + 31080306285000\,Y^4 - 72934601985000\,Y^2 + 40952876265000)T^2 + 191285955000\,Y^2 + 463546951875,$ $\mathbf{q}_{13} = -15465806549855550\,T^{17} + (-8058811075786800\,Y^2 + 153117410439949200)T^{15} + (-1741101158349000\,Y^4 + 52233034750470000\,Y^2 - 375033189508374600)T^{13} + (-201193911631440\,Y^6 + 6887022359691600\,Y^4 - 93575355588716400\,Y^2 + 202341187950274800)T^{11} + (-13364329878900\,Y^8 + 439994860628400\,Y^6 - 9877454719587000\,Y^4 + 19328746192686000\,Y^2 - 129049771528912500)T^9 + (-509117328720\,Y^{10} + 13902819361200\,Y^8 - 571090230496800\,Y^6 - 1425375491652000\,Y^4 - 30840659025498000\,Y^2 - 28656565635978000)T^7 + (-10420530120\,Y^{12} + 193982176080\,Y^{10} - 17992689132600\,Y^8 - 190066725828000\,Y^6 - 2545405696323000\,Y^4 - 13275003731598000\,Y^2 + 26372292309027000)T^5 + (-97297200\,Y^{14} + 785862000\,Y^{12} - 257443628400\,Y^{10} - 5116715730000\,Y^8 - 75868204986000\,Y^6 - 746552825550000\,Y^4 + 1469628738270000\,Y^2 - 1123593695910000)T^3 + (-270270\,Y^{16} - 831600\,Y^{14} - 1059193800\,Y^{12} - 30420003600\,Y^{10} - 502445632500\,Y^8 - 7348214538000\,Y^6 + 16094275155000\,Y^4 - 12504850470000\,Y^2 - 22679575458750)T,$ $\mathbf{q}_{12} = 33509247524687025\,T^{18} + 5005\,Y^{18} + (19643351997230325\,Y^2 - 399414823943683275)T^{16} + 155925\,Y^{16} + (4850210369686500\,Y^4 - 154460545619247000\,Y^2 + 1222029157297781700)T^{14} + 33585300\,Y^{14} + (653880212802180\,Y^6 - 23388792227154900\,Y^4 + 356342847073749900\,Y^2 - 914393525009737500)T^{12} + 1481098500\,Y^{12} + (52120886527710\,Y^8 - 1737362884257000\,Y^6 + 45082744437849300\,Y^4 - 102412074801090600\,Y^2 + 705477876223506750)T^{10} + 42118035750\,Y^{10} + (2481946977510\,Y^{10} - 63957864420450\,Y^8 + 3254864424493500\,Y^6 + 9865838196805500\,Y^4 + 198836092900194750\,Y^2 + 204233318709351750)T^8 + 639849435750\,Y^8 + (67733445780\,Y^{12} - 969109301160\,Y^{10} + 137179452746700\,Y^8 + 1722999362994000\,Y^6 + 23932319555371500\,Y^4 + 130295245151799000\,Y^2 - 274323069168151500)T^6 - 1190848837500\,Y^6 + (948647700\,Y^{14} - 170270100\,Y^{12} + 2969618897700\,Y^{10} + 69920100841500\,Y^8 + 1197222549421500\,Y^6 + 10977042671122500\,Y^4 - 21138885238432500\,Y^2 + 21771514150312500)T^4 + 1787210932500\,Y^4 + (5270265\,Y^{16} + 81081000\,Y^{14} + 24732294300\,Y^{12} + 843741927000\,Y^{10} + 18720748005750\,Y^8 + 227504346111000\,Y^6 - 306742031662500\,Y^4 + 478173629745000\,Y^2 + 592594980665625)T^2 + 4850130403125\,Y^2 + 5581517878125,$ $\mathbf{q}_{11} = -63491205836249100\,T^{19} + (-41597686582370100\,Y^2 + 901283209284685500)T^{17} + (-11640504887247600\,Y^4 + 392195472354957600\,Y^2 - 3392759462906242800)T^{15} + (-1810745204682960\,Y^6 + 67554724943941200\,Y^4 - 1143040480461154800\,Y^2 + 3394420538297065200)T^{13} + (-170577446817960\,Y^8 + 5755895384934240\,Y^6 - 170796135852342000\,Y^4 + 434316422282652000\,Y^2 - 3217998781976869800)T^{11} + (-9927787910040\,Y^{10} + 240557937820200\,Y^8 - 15077266093234800\,Y^6 - 53860167736830000\,Y^4 - 1057971621386043000\,Y^2 - 1261081149657147000)T^9 + (-348343435440\,Y^{12} + 3483434354400\,Y^{10} - 821027995678800\,Y^8 - 11773903992177600\,Y^6 - 174502372922514000\,Y^4 - 947084307096564000\,Y^2 + 2241578159268210000)T^7 + (-6830263440\,Y^{14} - 52715622960\,Y^{12} - 25132201108560\,Y^{10} - 667128468006000\,Y^8 - 12728981098638000\,Y^6 - 104963034841434000\,Y^4 + 238734163086426000\,Y^2 - 297807832848834000)T^5 + (-63243180\,Y^{16} - 1751349600\,Y^{14} - 353547406800\,Y^{12} - 13475158250400\,Y^{10} - 340829099541000\,Y^8 - 3517220113092000\,Y^6 + 4350290200830000\,Y^4 - 13219389778140000\,Y^2 - 10198540090147500)T^3 + (-180180\,Y^{18} - 8773380\,Y^{16} - 1461272400\,Y^{14} - 71246725200\,Y^{12} - 2361855850200\,Y^{10} - 30220930467000\,Y^8 + 5099458518000\,Y^6 - 105477326010000\,Y^4 - 352298094592500\,Y^2 - 233138196742500)T,$ $\mathbf{q}_{10} = 104760489629811015\,T^{20} + 3003\,Y^{20} + (76262425401011850\,Y^2 - 1754035784223272550)T^{18} + 279510\,Y^{18} + (24008541329948175\,Y^4 - 853226622648927450\,Y^2 + 8017005993331155975)T^{16} + 40951575\,Y^{16} + (4268185125324120\,Y^6 - 165802576022206200\,Y^4 + 3090009007201624200\,Y^2 - 10424772892710729000)T^{14} + 2550025800\,Y^{14} + (469087978749390\,Y^8 - 16021158658825320\,Y^6 + 538532681617394100\,Y^4 - 1496423455565711400\,Y^2 + 12189347811375994350)T^{12} + 112585249350\,Y^{12} + (32761700103132\,Y^{10} - 743438579263380\,Y^8 + 57121959445551000\,Y^6 + 234611514409872600\,Y^4 + 4650065744678253900\,Y^2 + 6525513519315090300)T^{10} + 1486454400900\,Y^{10} + (1436916671190\,Y^{12} - 8179371820620\,Y^{10} + 3910792444609050\,Y^8 + 62240180575973400\,Y^6 + 987692006489438250\,Y^4 + 5094579989455456500\,Y^2 - 14651706729192860250)T^8 + 2935114197750\,Y^8 + (37566448920\,Y^{14} + 586614548520\,Y^{12} + 161289578169720\,Y^{10} + 4675891080861000\,Y^8 + 95767657685469000\,Y^6 + 671629291823259000\,Y^4 - 2151688051568727000\,Y^2 + 2971482205900383000)T^6 + 10430710605000\,Y^6 + (521756235\,Y^{16} + 20870249400\,Y^{14} + 3449580542100\,Y^{12} + 141778751776200\,Y^{10} + 3778174041185250\,Y^8 + 31222192752261000\,Y^6 - 60188776488067500\,Y^4 + 238680624773115000\,Y^2 + 125112202454176875)T^4 + 58973741229375\,Y^4 + (2972970\,Y^{18} + 196902090\,Y^{16} + 28940020200\,Y^{14} + 1501648129800\,Y^{12} + 50642472566700\,Y^{10} + 486132643615500\,Y^8 - 117361309779000\,Y^6 + 6224343706665000\,Y^4 + 9312326325776250\,Y^2 + 5187571017536250)T^2 + 49590883833750\,Y^2 + 14657286301875,$ $\mathbf{q}_9 = -149657842328301450\,T^{21} + (-120414355896334500\,Y^2 + 293008266014413950 0)T^{19} + (-42368014111673250\,Y^4 + 1583911912174861500\,Y^2 -$

$160718172915619588 50)T^{17}+(-8536370250648240\,Y^6+344738029353102000\,Y^4-7026232108815334800\,Y^2+26548954994362928400)T^{15}+$
$(-1082510720190900\,Y^8+37416011559418800\,Y^6-1412941440025395000\,Y^4+4218158206327086000\,Y^2-38182262742010264500)T^{13}+$
$(-89350091190360\,Y^{10}+1890098082873000\,Y^8-177450421137116400\,Y^6-821476582783038000\,Y^4-16843729702364019000\,Y^2-$
$27689879799593739000)T^{11}+(-4789722237300\,Y^{12}+6631923097800\,Y^{10}-14941066639999500\,Y^8-258521859045450000\,Y^6-$
$4357637325669127500\,Y^4-20069104533713235000\,Y^2+77029103753340007500)T^9+(-160999066800\,Y^{14}-3785542160400\,Y^{12}-$
$800504248143600\,Y^{10}-24806163896514000\,Y^8-527775154864650000\,Y^6-2830486949738910000\,Y^4+15135962329981710000\,Y^2-$
$22432707027279990000)T^7+(-3130537410\,Y^{16}-163751187600\,Y^{14}-24281642662200\,Y^{12}-1052943959113200\,Y^{10}-$
$28148864831167500\,Y^8-161054816447574000\,Y^6+665750126247885000\,Y^4-2929250293043130000\,Y^2-1119917969690861250)T^5+$
$(-29729700\,Y^{18}-2490434100\,Y^{16}-344367450000\,Y^{14}-18625424202000\,Y^{12}-600202543059000\,Y^{10}-3512898931815000\,Y^8+$
$7434396570510000\,Y^6-146392904192850000\,Y^4-163039104965362500\,Y^2-86638031763412500)T^3+(-90090\,Y^{20}-$
$10510500\,Y^{18}-1482336450\,Y^{16}-94513230000\,Y^{14}-3627540976500\,Y^{12}-19765393767000\,Y^{10}+27283253287500\,Y^8-$
$1902530108430000\,Y^6-2155834908281250\,Y^4-3919421087662500\,Y^2+447510678693750)T,\quad \mathbf{q_8}=183670988312006325\,T^{22}+$
$1365\,Y^{22}+(162559380460051575\,Y^2-4172357431807990425)T^{20}+246015\,Y^{20}+(63552021167509875\,Y^4-2493194676571541250\,Y^2+$
$27181688315045262075)T^{18}+36850275\,Y^{18}+(14405124797968905\,Y^6-603907154991773325\,Y^4+13377254103772695675\,Y^2-$
$55974815513793276975)T^{16}+2719544625\,Y^{16}+(2087699246082450\,Y^8-73015942862986200\,Y^6+3074952267184423500\,Y^4-$
$9740941894903023000\,Y^2+98414407552796291250)T^{14}+98273999250\,Y^{14}+(201037705178310\,Y^{10}-3943431909266850\,Y^8+$
$451541636724987900\,Y^6+2318860543607653500\,Y^4+50035856666945262750\,Y^2+95114506609638447750)T^{12}-$
$830307854250\,Y^{12}+(12932250040710\,Y^{12}+37801961657460\,Y^{10}+45911908119127050\,Y^8+850521262477887000\,Y^6+$
$15031950718054520250\,Y^4+55810035521516776500\,Y^2-325165281879378822 50)T^{10}-8598553724250\,Y^{10}+(543371850450\,Y^{14}+$
$17067449148750\,Y^{12}+3105646244350650\,Y^{10}+101323239250983750\,Y^8+2175395497471869750\,Y^6+6874522451445206250\,Y^4-$
$81182643512887901250\,Y^2+132022417838203541250)T^8+211739487041250\,Y^8+(14087418345\,Y^{16}+910263954600\,Y^{14}+$
$127138836894300\,Y^{12}+5735877306528600\,Y^{10}+148425714637593750\,Y^8+374701102816383000\,Y^6-5028299537001142500\,Y^4+$
$25720936510904145000\,Y^2+7192580977150655625)T^6+162726680615625\,Y^6+(200675475\,Y^{18}+20329969275\,Y^{16}+$
$2740578907500\,Y^{14}+152738477293500\,Y^{12}+4538744632532250\,Y^{10}+7083944611616250\,Y^8-111691683464602500\,Y^6+$
$1921132808205187500\,Y^4+2000919227888896875\,Y^2+1286942656773571875)T^4+731900852746875\,Y^4+(1216215\,Y^{20}+$
$170581950\,Y^{18}+23908533075\,Y^{16}+1552735737000\,Y^{14}+50841154554750\,Y^{12}-50207848015500\,Y^{10}-1312353863651250\,Y^8+$
$48265125888105000\,Y^6+88587177040096875\,Y^4+158556548340618750\,Y^2-34242288683990625)T^2-370328202365625\,Y^2+$
$93610564228125,\quad \mathbf{q_7}=-191656683456006600\,T^{23}+(-185782149097201800\,Y^2+5016118025624448600)T^{21}+$
$(-80276237264223000\,Y^4+3297500823007314000\,Y^2-38454787687632485400)T^{19}+(-20336646773603160\,Y^6+$
$883861955929675800\,Y^4-21162695519641321800\,Y^2+97160045807492829000)T^{17}+(-3340318793731920\,Y^8+$
$118195895778206400\,Y^6-5514796251833349600\,Y^4+18364278526266859200\,Y^2-207240072124273650000)T^{15}+$
$(-371146532636880\,Y^{10}+6709187320743600\,Y^8-936656644207284000\,Y^6-5267974473187524000\,Y^4-120971825196098058000\,Y^2-$
$261969795915526314000)T^{13}+(-28215818270640\,Y^{12}-204022070572320\,Y^{10}-113258654345163600\,Y^8-2220155451056088000\,Y^6-$
$4052331707169400 2000\,Y^4-97016859245933172000\,Y^2+1095243066022060242000)T^{11}+(-1448991601200\,Y^{14}-$
$56956516016400\,Y^{12}-9452724698617200\,Y^{10}-321145024314114000\,Y^8-6771322874919834000\,Y^6-14651815491413100 00\,Y^4+$
$32694309664422147000 0\,Y^2-6159922555675801500 00)T^9+(-48299720040\,Y^{16}-3715363080000\,Y^{14}-503153175016800\,Y^{12}-$
$23398409216952000\,Y^{10}-569070160152102000\,Y^8+854472231441864000\,Y^6+25004463359091300000\,Y^4-165662373262102920000\,Y^2-$
$313275301409558250 00)T^7+(-963242280\,Y^{18}-114477640200\,Y^{16}-15368386672800\,Y^{14}-877047282468000\,Y^{12}-$
$23519320158222000\,Y^{10}+76300146659898000\,Y^8+754324671382380000\,Y^6-16312004195365620000\,Y^4-17969842739178225000\,Y^2-$
$15931663658534925000)T^5+(-9729720\,Y^{20}-1594177200\,Y^{18}-226210887000\,Y^{16}-14954225832000\,Y^{14}-419638710582000\,Y^{12}+$
$2806470803052000\,Y^{10}+13618808783370000\,Y^8-603776038559400000\,Y^6-1729980781503975000\,Y^4-3252659797601550000\,Y^2+$
$827743555288125000)T^3+(-32760\,Y^{22}-6902280\,Y^{20}-1057681800\,Y^{18}-78475635000\,Y^{16}-2164090446000\,Y^{14}+$
$32486034798000\,Y^{12}+100613411766000\,Y^{10}-6381501996870000\,Y^8-27686110260375000\,Y^6-75133016102025000\,Y^4+$
$18532739750175000\,Y^2-3727206833175000)T,\quad \mathbf{q_6}=167699598024005775\,T^{24}+455\,Y^{24}+(177337505956419900\,Y^2-$
$5024562668765230500)T^{22}+134820\,Y^{22}+(84290049127434150\,Y^4-3617988262546788900\,Y^2+44952531584653920150)T^{20}+$
$23403870\,Y^{20}+(23726087902537020\,Y^6-1067673955614165900\,Y^4+27498853284898634100\,Y^2-137463102940230792900)T^{18}+$
$1942384500\,Y^{18}+(4384168416773145\,Y^8-156930746405520780\,Y^6+8064723790434795750\,Y^4-28024953494911411500\,Y^2+$
$352783213267247505225)T^{16}+36981653625\,Y^{16}+(556719798955320\,Y^{10}-9207288982722600\,Y^8+1569338540917988400\,Y^6+$
$9566055995845230000\,Y^4+235409072754050559000\,Y^2+572575656191875371000)T^{14}-1371507795000\,Y^{14}+(49377681973620\,Y^{12}+$
$569742484311000\,Y^{10}+222736711127193900\,Y^8+4578121690199038800\,Y^6+8489687514462103950 0\,Y^4+446540973425926470 00\,Y^2-$
$291359020698346182 7500)T^{12}+3080287318500\,Y^{12}+(3042882362520\,Y^{14}+143639652035880\,Y^{12}+22506838986111480\,Y^{10}+$
$789756178432221000\,Y^8+15911106314480685000\,Y^6-59747890906907973000\,Y^4-976191259483014183000\,Y^2+$
$2279561306532207327000)T^{10}+299367020421000\,Y^{10}+(126786765105\,Y^{16}+11313280578600\,Y^{14}+1512989184930300\,Y^{12}+$
$72070606920173400\,Y^{10}+1603817468500479750\,Y^8-10559267708942673000\,Y^6-79944749707283842500\,Y^4+785968750274743665000\,Y^2+$
$937900491998009006 25)T^8+3135310421315625\,Y^8+(3371347980\,Y^{18}+459799997580\,Y^{16}+62294151956400\,Y^{14}+$
$3628246882201200\,Y^{12}+86758553692276200\,Y^{10}-727535653243623000\,Y^8-2248310416408938000\,Y^6+96084828184814910000\,Y^4+$
$126209167576731067500\,Y^2+145621021569318067500)T^6+10570433743012500\,Y^6+(51081030\,Y^{20}+9574418700\,Y^{18}+$
$1390831069950\,Y^{16}+93729403530000\,Y^{14}+2313824708947500\,Y^{12}-25114791943395000\,Y^{10}-37551370205632500\,Y^8+$
$477551742602193000 0\,Y^6+1899286096951726875 0\,Y^4+34183747164628687500\,Y^2-12338281534363706250)T^4-$
$3151872128081250\,Y^4+(343980\,Y^{22}+82952100\,Y^{20}+13145195700\,Y^{18}+991468503900\,Y^{16}+23634549603000\,Y^{14}-$
$405308433663000\,Y^{12}-846215308575000\,Y^{10}+85260617233155000\,Y^8+649830080716897500\,Y^6+1563032616773512500\,Y^4-$
$1735966456599375 00\,Y^2+117063206871187500)T^2+1114718902762500\,Y^2+412481438184375,\quad \mathbf{q_5}=-120743710577284158\,T^{25}+$
$(-138785874226763400\,Y^2+4117314268727314200)T^{23}+(-72248613537800700\,Y^4+3234514852230769800\,Y^2-$
$42665585086899690300)T^{21}+(-22477346433982440\,Y^6+1046061122504567400\,Y^4-28857078892577489400\,Y^2+$
$156047559542707203000)T^{19}+(-4642060676583330\,Y^8+168066401931683640\,Y^6-9462770354962442700\,Y^4+$
$34116873635493343800\,Y^2-477873929348003484450)T^{17}+(-668063758746384\,Y^{10}+10020956381195760\,Y^8-$
$2092180461394615200\,Y^6-13703835091854247200\,Y^4-362817552253053214800\,Y^2-978823391779323291600)T^{15}+$
$(-68369098117320\,Y^{12}-1083387247089840\,Y^{10}-344633830460249400\,Y^8-7373780943647479200\,Y^6-136520070172183971000\,Y^4+$
$282687916302321138000\,Y^2+602907703528623878 7000)T^{13}+(-4979262047760\,Y^{14}-274370106170160\,Y^{12}-41498133259761360\,Y^{10}-$
$1494656949189222000\,Y^8-27920171774168478000\,Y^6+257704848203354118000\,Y^4+2123740273153485546000\,Y^2-$
$6590009666559291714000)T^{11}+(-253573530210\,Y^{16}-25747466144400\,Y^{14}-3441771667164600\,Y^{12}-167209670409289200\,Y^{10}-$
$3314522239179511500\,Y^8+43269109229019114000\,Y^6+149859329987155005000\,Y^4-2725152277145925690000\,Y^2-$
$2923361317020613612 50)T^9+(-8669180520\,Y^{18}-1334386940040\,Y^{16}-184001455159200\,Y^{14}-10920592714096800\,Y^{12}-$
$232044128139121200\,Y^{10}+3117880892930202000\,Y^8-1563477625544436000\,Y^6-4063628886182699400 00\,Y^4-$

$$
\begin{aligned}
&694397030937410745000\,Y^2-924253481322563805000)T^7+(-183891708\,Y^{20}-38805865560\,Y^{18}-5809788463500\,Y^{16}-\\
&400068370144800\,Y^{14}-9080541270876600\,Y^{12}+109094367585999600\,Y^{10}-413971551272979000\,Y^8-2681831497052610000\,Y^6-\\
&13309039080853440750\,Y^4-18451214824994941500\,Y^2+11962049502536768250)T^5+(-2063880\,Y^{22}-560581560\,Y^{20}-\\
&92429278200\,Y^{18}-7151484702600\,Y^{16}-169022698866000\,Y^{14}+1872647491554000\,Y^{12}-10295449680726000\,Y^{10}-\\
&778793783210730000\,Y^8-7379585875119465000\,Y^6-12518591008985775000\,Y^4+21636853401350250000\,Y^2-2385367308511425000)T^3+\\
&(-8190\,Y^{24}-2739240\,Y^{22}-497686140\,Y^{20}-42313509000\,Y^{18}-949485017250\,Y^{16}+16281846126000\,Y^{14}+\\
&69360287283000\,Y^{12}-5893919348562000\,Y^{10}-98035556907881250\,Y^8-234459588867525000\,Y^6-138903899649637500\,Y^4-\\
&18746417414025000\,Y^2-16739391726618750)T,\quad \mathbf{q}_4=69659833025356245\,T^{26}+105\,Y^{26}+(86741171391727125\,Y^2-\\
&2688976313143540875)T^{24}+46725\,Y^{24}+(49260418321227750\,Y^4-2296293346358770500\,Y^2+32054890980507232950)T^{22}+\\
&9856350\,Y^{22}+(16858009825486830\,Y^6-810481241609943750\,Y^4+23855211529139147850\,Y^2-138771892395654610050)T^{20}+\\
&950244750\,Y^{20}+(3868383897152775\,Y^8-141642364234209300\,Y^6+869574827790041625\,0\,Y^4-32375938571960728500\,Y^2+\\
&503036106482815896375)T^{18}+28094731875\,Y^{18}+(626309773824735\,Y^{10}-8431093109179125\,Y^8+216834805917393615\,0\,Y^6+\\
&1515318885373622175\,0\,Y^4+432418134354311770875\,Y^2+1280197269469600563375)T^{16}+11015463375\,Y^{16}+(73252605125700\,Y^{12}+\\
&1476321734071800\,Y^{10}+410487741672025500\,Y^8+9089426917135530000\,Y^6+16486038937381119750\,0\,Y^4-9335743361953340850\,00\,Y^2-\\
&948577417473972021750\,0)T^{14}-7594552507500\,Y^{14}+(6224077559700\,Y^{14}+392116886261100\,Y^{12}+5811160067384490\,0\,Y^{10}+\\
&2138066324254633500\,Y^8+35718197119496797500\,Y^6-60964041791611239750\,0\,Y^4-3267008928683007952500\,Y^2+\\
&14467537223095295272500)T^{12}+191792925292500\,Y^{12}+(380360295315\,Y^{16}+43302556697400\,Y^{14}+5833401091125300\,Y^{12}+\\
&288168300950329800\,Y^{10}+4941283451721671250\,Y^8-105940276577597259000\,Y^6-947977377329173275000\,Y^4+\\
&6785186437400928795000\,Y^2+14097872452684871418750)T^{10}+6041183185209375\,Y^{10}+(16254713475\,Y^{18}+2787058179675\,Y^{16}+\\
&393309298147500\,Y^{14}+23773321169293500\,Y^{12}+451266446368568250\,Y^{10}-7951899750216423750\,Y^8+37956773712790957500\,Y^6+\\
&1245705353889721987500\,Y^4+2893151595551915446875\,Y^2+4046402506864153471875)T^8+13451797993921875\,Y^8+\\
&(459729270\,Y^{20}+107859559500\,Y^{18}+16709438998350\,Y^{16}+1178710484490000\,Y^{14}+25963392325279500\,Y^{12}-\\
&235739489943699000\,Y^{10}+4507206098598787500\,Y^8+110640807479552490000\,Y^6+628422700206154218750\,Y^4+\\
&383514066270210487500\,Y^2-7258740336037854562500)T^6+29454394197768750\,Y^6+(7739550\,Y^{22}+2337939450\,Y^{20}+\\
&402405995250\,Y^{18}+32163679563750\,Y^{16}+832162399267500\,Y^{14}+540731013322500\,Y^{12}+231493536979582500\,Y^{10}+\\
&5406684043667287500\,Y^8+50776308003166593750\,Y^6+34292514960693281250\,Y^4-29913929238180093750\,Y^2+\\
&25109809764733968750)T^4+1342447645218750\,Y^4+(61425\,Y^{24}+22887900\,Y^{22}+4369273650\,Y^{20}+386832631500\,Y^{18}+\\
&11470169379375\,Y^{16}+100933078995000\,Y^{14}+4275194210437500\,Y^{12}+105536658412395000\,Y^{10}+1341367927426209375\,Y^8+\\
&1434310052730187500\,Y^6+18038641799095312500\,Y^4+1762274886029437500\,Y^2+446350550474390625)T^2+5894807234203125\,Y^2+\\
&232602314765625,\quad \mathbf{q}_3=-30959925789047220\,T^{27}+(-41635762268029020\,Y^2+1346222979999604980)T^{25}+\\
&(-25701087819771000\,Y^4+1245514255881210000\,Y^2-18347018091156833400)T^{23}+(-9633148471706760\,Y^6+\\
&477952366480835400\,Y^4-14957637709755648600\,Y^2+93152911833766474200)T^{21}+(-2443189829780700\,Y^8+\\
&90460669594957200\,Y^6-6029211601617561000\,Y^4+23092756907190138000\,Y^2-39665400452034225750\,0)T^{19}+\\
&(-442101016817460\,Y^{10}+5271204431285100\,Y^8-168444175650507540\,0\,Y^6-12484396292516001000\,Y^4-38414777708327110650\,0\,Y^2-\\
&1236801664400695186500)T^{17}+(-58602084100560\,Y^{12}-1433497134152160\,Y^{10}-36331616763965880\,0\,Y^8-8286272819332200000\,Y^6-\\
&14413458660373193400\,0\,Y^4+1537261039716868116000\,Y^2+1095066362558431884600\,0)T^{15}+(-5745302362800\,Y^{14}-\\
&407327205978000\,Y^{12}-5977247852804760\,0\,Y^{10}-2238014569439250000\,Y^8-31875603932639754000\,Y^6+92443355862948405000\,0\,Y^4+\\
&3362761237454048430000\,Y^2-2312940519758760759000\,0)T^{13}+(-414938503980\,Y^{16}-52346088194400\,Y^{14}-7146761810101200\,Y^{12}-\\
&358222887901418400\,Y^{10}-5131052143806645000\,Y^8+16753616023883986800\,0\,Y^6-2464780924189905300\,00\,Y^4-\\
&11764025280828239580000\,Y^2-5744450272380644947500)T^{11}+(-21672951300\,Y^{18}-4096187795700\,Y^{16}-593688684330000\,Y^{14}-\\
&36546368640138000\,Y^{12}-628936269329403000\,Y^{10}+12454170506279145000\,Y^8-144106904653217730000\,Y^6-\\
&272240875883143125000\,0\,Y^4-8758722569417322862500\,Y^2-11787223164622516012500)T^9+(-788107320\,Y^{20}-\\
&203493351600\,Y^{18}-32695513968600\,Y^{16}-2368264701096000\,Y^{14}-53358796639638000\,Y^{12}+119500674904044000\,Y^{10}-\\
&19743113850234390000\,Y^8-322214497569334440000\,Y^6-1991154672422522775000\,Y^4+9468468265318240500\,00\,Y^2+\\
&2831656501427762925000)T^7+(-18574920\,Y^{22}-6176875320\,Y^{20}-1111573222200\,Y^{18}-92252661669000\,Y^{16}-\\
&2738678846274000\,Y^{14}-36672797690046000\,Y^{12}-1526472097312806000\,Y^{10}-24548193590426730000\,Y^8-215397832224618225000\,Y^6+\\
&1153987100233490250000\,Y^4+2371897569864044250000\,Y^2-1399752951528818250000)T^5+(-245700\,Y^{24}-100926000\,Y^{22}-\\
&20277621000\,Y^{20}-1888082406000\,Y^{18}-71719534309500\,Y^{16}-1897907453820000\,Y^{14}-59228595382950000\,Y^{12}-\\
&946960220058300000\,Y^{10}-9608297711062837500\,Y^8+12594090618994500000\,Y^6-250691242969912500\,0\,Y^4-32184539868678750000\,Y^2-\\
&8790728205636562500)T^3+(-1260\,Y^{26}-619500\,Y^{24}-137932200\,Y^{22}-14130433800\,Y^{20}-662012662500\,Y^{18}-\\
&25307274730500\,Y^{16}-787970610630000\,Y^{14}-12761831273310000\,Y^{12}-135219968450752500\,Y^{10}+746416081096875\,00\,Y^8-\\
&760903460462250000\,Y^6-1169816852980125000\,Y^4-519460780895437500\,Y^2+9862338146062500)T,\quad \mathbf{q}_2=9951404717908035\,T^{28}+\\
&15\,Y^{28}+(14412379246625430\,Y^2-485216767969722810)T^{26}+9450\,Y^{26}+(9637907932414125\,Y^4-484860906753756750\,Y^2+\\
&7517123360763059925)T^{24}+2461725\,Y^{24}+(3940833465698220\,Y^6-201588788822255100\,Y^4+6686829948677804100\,Y^2-\\
&44394675195143668500)T^{22}+296748900\,Y^{22}+(1099435423401315\,Y^8-41158351747844100\,Y^6+296634853035972045\,0\,Y^4-\\
&11650786377020172900\,Y^2+220463519441588269875)T^{20}+21862740375\,Y^{20}+(221050508408730\,Y^{10}-2295524510398350\,Y^8+\\
&923030283593722500\,Y^6+7218828635635606500\,Y^4+23938019433387326925\,0\,Y^2+831778382131571810250)T^{18}+\\
&1401063945750\,Y^{18}+(32963672306565\,Y^{12}+948339495588870\,Y^{10}+22510032132088147\,5\,Y^8+52672508697649365\,00\,Y^6+\\
&85692378234818698875\,Y^4-1521908965972300484250\,Y^2-873982002199160056387\,5)T^{16}+53045439418125\,Y^{16}+\\
&(3693408661800\,Y^{14}+291021661992600\,Y^{12}+42605655687289800\,Y^{10}+1618539964425531000\,Y^8+18299699941604571000\,Y^6-\\
&89879851818293323500\,0\,Y^4-2070094820535474705000\,Y^2+25248974601629694825000)T^{14}+801963419355000\,Y^{14}+\\
&(311203877985\,Y^{16}+43089767721000\,Y^{14}+5985858440576700\,Y^{12}+303971169516903000\,Y^{10}+3474398356320291750\,Y^8-\\
&16833412254230504100\,0\,Y^6+681750810951812437500\,Y^4+1344187956856214830500\,0\,Y^2+13853497622284347890625)T^{12}+\\
&7240875247423125\,Y^{12}+(19505656170\,Y^{18}+4028668216650\,Y^{16}+601049248468200\,Y^{14}+37692349294005000\,Y^{12}+\\
&602473954367155500\,Y^{10}-11242291312225984500\,Y^8+28011027142142068500\,0\,Y^6+402981858714499690500\,0\,Y^4+\\
&18048181450423593656250\,Y^2+20748593883185515856250)T^{10}-18225599206106250\,Y^{10}+(886620735\,Y^{20}+249845176350\,Y^{18}+\\
&41682799816875\,Y^{16}+3106556611641000\,Y^{14}+74665123502964750\,Y^{12}+534142184016136500\,Y^{10}+4597247192548885875\,0\,Y^8+\\
&60661000413853402500\,0\,Y^6+4040594908303349221875\,Y^4-7439208303408771881250\,Y^2-6935819570856885515625)T^8-\\
&19943100941990625\,Y^8+(27862380\,Y^{22}+10114043940\,Y^{20}+1903890006900\,Y^{18}+164651716561500\,Y^{16}+5668875655443000\,Y^{14}+\\
&138862637018721000\,Y^{12}+4704900462778257000\,Y^{10}+63511108995426435000\,Y^8+536790850176688537500\,Y^6-\\
&1078925221493400487500\,Y^4-1011002909386419337500\,Y^2+10743391107916495875\,00)T^6+193179545303062500\,Y^6+\\
&(552825\,Y^{24}+248175900\,Y^{22}+52497367650\,Y^{20}+5168429815500\,Y^{18}+238374497946375\,Y^{16}+8850586276035000\,Y^{14}+\\
&271131508767577500\,Y^{12}+3767521822218315000\,Y^{10}+35267364047091684375\,Y^8-388926116335000125\,00\,Y^6+\\
&221270860399502812\,50\,Y^4+330826444321625437500\,Y^2+90635811325793015625)T^4+1180755807554531\,25\,Y^4+
\end{aligned}
$$

$(5670\,Y^{26} + 3052350\,Y^{24} + 718823700\,Y^{22} + 79112092500\,Y^{20} + 4620841769250\,Y^{18} + 221043771632250\,Y^{16} +$
$7141636482435000\,Y^{14}+103508757238635000\,Y^{12}+1015327719169706250\,Y^{10}-412507894719768750\,Y^{8}+768374499128512500\,Y^{6}+$
$17751118754923312500\,Y^{4}+7990846504579968750\,Y^{2}-346311617783906250)T^{2}-5861578332093750\,Y^{2}+299060118984375, \quad \mathbf{q}_1 =$
$-2058911320946490\,T^{29}+(-3202750943694540\,Y^{2}+112096283029308900)T^{27}+(-2313097903779390\,Y^{4}+120636952212494340\,Y^{2}-$
$1963820120308702110)T^{25}+(-1028043512790840\,Y^{6}+54169985097055800\,Y^{4}-1899112689205540200\,Y^{2}+13391057556802837800)T^{23}+$
$(-314124406686090\,Y^{8}+11888400622273560\,Y^{6}-923152321047757500\,Y^{4}+3708205670816703000\,Y^{2}-77034760175239533450)T^{21}+$
$(-69805423708020\,Y^{10}+617509517417100\,Y^{8}-318229746639827400\,Y^{6}-2614896527607945000\,Y^{4}-93336429316395226500\,Y^{2}-$
$347767826255658238500)T^{19}+(-11634237284670\,Y^{12}-384824771723700\,Y^{10}-87149793466987650\,Y^{8}-2085383065602979800\,Y^{6}-$
$30755778146008193250\,Y^{4}+865772990916574135500\,Y^{2}+4306816518950882081250)T^{17}+(-1477363464720\,Y^{14}-$
$128076048056880\,Y^{12}-18810111900419280\,Y^{10}-723245780863494000\,Y^{8}-5720253447152286000\,Y^{6}+514177793785476198000\,Y^{4}+$
$5648012860967017380000\,Y^{2}-16761364588803306402000)T^{15}+(-143632559070\,Y^{16}-21655370444400\,Y^{14}-3069297212272200\,Y^{12}-$
$157738187047971600\,Y^{10} - 1345528904618776500\,Y^{8} + 97961457598829622000\,Y^{6} - 696273502542763005000\,Y^{4} -$
$9074968983265939110000\,Y^{2}-17589445369515278358750)T^{13}+(-10639448820\,Y^{18}-2384054954820\,Y^{16}-366632430267600\,Y^{14}-$
$23432517013726800\,Y^{12}-359238799764091800\,Y^{10}+4718379529937997000\,Y^{8}-289697132657308698000\,Y^{6}-3612815584880104890000\,Y^{4}-$
$22341223720366514932500\,Y^{2}-18223480285848493582500)T^{11}+(-591080490\,Y^{20}-180506888100\,Y^{18}-31284257630850\,Y^{16}-$
$2402965397070000\,Y^{14}-63344801316352500\,Y^{12}-1105794713723175000\,Y^{10}-55865245593916552500\,Y^{8}-643450736493112590000\,Y^{6}-$
$4748165160242207681250\,Y^{4} + 15394968789630573937500\,Y^{2} + 8254010444065136493750)T^{9} + (-23882040\,Y^{22} -$
$9396664200\,Y^{20}-1849930374600\,Y^{18}-167095588678200\,Y^{16}-6623492829534000\,Y^{14}-220140941074866000\,Y^{12}-$
$6975509046704730000\,Y^{10}-81901126660142790000\,Y^{8}-695089268636136255000\,Y^{6}+2723006045118896775000\,Y^{4}+$
$2664473085690924375000\,Y^{2} - 5448473494388544375000)T^{7} + (-663390\,Y^{24} - 323121960\,Y^{22} - 71929948860\,Y^{20} -$
$7505303589000\,Y^{18}-401975673293250\,Y^{16}-17425508594130000\,Y^{14}-526836051310653000\,Y^{12}-6559820577961938000\,Y^{10}-$
$62799666622838381250\,Y^{8}+87598972192506075000\,Y^{6}-296602185070281037500\,Y^{4}-1474549884565353225000\,Y^{2}-$
$376367433547989318750)T^{5}+(-11340\,Y^{26}-6633900\,Y^{24}-1653258600\,Y^{22}-195980488200\,Y^{20}-13106441722500\,Y^{18}-$
$662673648514500\,Y^{16}-20887179980310000\,Y^{14}-282058529536350000\,Y^{12}-3018223686271972500\,Y^{10}-4384821363343312500\,Y^{8}-$
$21525129857522025000\,Y^{6} - 103471877025208125000\,Y^{4} - 11989971456564937500\,Y^{2} + 5774359109837062500)T^{3} +$
$(-90\,Y^{28}-61740\,Y^{26}-17013150\,Y^{24}-2253598200\,Y^{22}-176788190250\,Y^{20}-9754930804500\,Y^{18}-318801378750750\,Y^{16}-$
$4447241995770000\,Y^{14}-52651311898578750\,Y^{12}-180623197653412500\,Y^{10}-526027698056306250\,Y^{8}-2572888193311275000\,Y^{6}-$
$772890971503218750\,Y^{4}-247781277249187500\,Y^{2}-12959271822656250)T, \quad \mathbf{q}_0 = 90\,TX^{30}+205891132094649\,T^{30}+$
$X^{30}+Y^{30}+(343151886824415\,Y^{2}-12467851887953745)T^{28}+855\,Y^{28}+(266895911974545\,Y^{4}-14412379246625430\,Y^{2}+$
$245811134928555945)T^{26}+275625\,Y^{26}+(128505439098855\,Y^{6}-6968948812668675\,Y^{4}+257554555055435925\,Y^{2}-$
$1922391943749986625)T^{24}+44441775\,Y^{24}+(42835146366285\,Y^{8}-1638718932781980\,Y^{6}+136644116908449150\,Y^{4}-$
$560086013795471100\,Y^{2}+12730753775566554525)T^{22}+4060783125\,Y^{22}+(10470813556203\,Y^{10}-76517483679945\,Y^{8}+$
$51930597815513550\,Y^{6}+446668065138963150\,Y^{4}+17134239772133241975\,Y^{2}+68083614964471020075)T^{20}+207533751075\,Y^{20}+$
$(1939039547445\,Y^{12}+72490247696790\,Y^{10}+15872801459062275\,Y^{8}+387335760139055700\,Y^{6}+4966260292078792875\,Y^{4}-$
$219391313625118514250\,Y^{2}-987121566914058583875)T^{18}+5923312282125\,Y^{18}+(277005649635\,Y^{14}+26201893371885\,Y^{12}+$
$3876302771947935\,Y^{10}+150552748144346625\,Y^{8}+611528589858839625\,Y^{6}-132315060718915853625\,Y^{4}+11896115762319067125\,Y^{2}+$
$5091352640433096100875)T^{16}+77461769896875\,Y^{16}+(30778405515\,Y^{16}+5019247668600\,Y^{14}+727212650994900\,Y^{12}+$
$37793261862001800\,Y^{10}+214511736599417250\,Y^{8}-25126138303645491000\,Y^{6}+274776697273223092500\,Y^{4}+2735159588700616035000\,Y^{2}+$
$9163014664668879616875)T^{14}+1691986493491875\,Y^{14}+(2659862205\,Y^{18}+642663629685\,Y^{16}+101952332313300\,Y^{14}+$
$6644086914269700\,Y^{12}+101346793849844550\,Y^{10}-298739643719564250\,Y^{8}+126859497950110306500\,Y^{6}+1474770758254926772500\,Y^{4}+$
$12353324750841035233125\,Y^{2}+4701616168042373698125)T^{12}+21127132873153125\,Y^{12}+(177324147\,Y^{20}+58335097590\,Y^{18}+$
$10502642620575\,Y^{16}+832483300912200\,Y^{14}+24428227005948150\,Y^{12}+670167595543868100\,Y^{10}+27909592318881519750\,Y^{8}+$
$284868817499929005000\,Y^{6}+2474446523044839564375\,Y^{4}-9797539843874926946250\,Y^{2}+711575050142526766875)T^{10}+$
$60580010182426875\,Y^{10}+(8955765\,Y^{22}+3796555455\,Y^{20}+781214825475\,Y^{18}+73798662229425\,Y^{16}+3320791358519250\,Y^{14}+$
$131842615029441750\,Y^{12} + 4001251919029611750\,Y^{10} + 38622239875976321250\,Y^{8} + 354175782842632235625\,Y^{6} -$
$1918410303332196253125\,Y^{4}-1751845493630807465625\,Y^{2}+9443971835072962228125)T^{8}+225021251512378125\,Y^{8}+$
$(331695\,Y^{24}+174216420\,Y^{22}+40774449870\,Y^{20}+4511008624500\,Y^{18}+271665478688625\,Y^{16}+12732511726557000\,Y^{14}+$
$375130032565018500\,Y^{12} + 4045763811379941000\,Y^{10} + 46685866420475690625\,Y^{8} + 17034748127560012500\,Y^{6} +$
$644222760196600068750\,Y^{4} + 3366662881162066762500\,Y^{2} + 898711974965844309375)T^{6} + 50098108080234375\,Y^{6} +$
$(8505\,Y^{26} + 5372325\,Y^{24} + 1416167550\,Y^{22} + 180484519950\,Y^{20} + 13304000185875\,Y^{18} + 682841792091375\,Y^{16} +$
$20712824439772500\,Y^{14}+255790716490732500\,Y^{12}+3468407818261719375\,Y^{10}+16693527887869021875\,Y^{8}+48029919060345468750\,Y^{6}+$
$240167299660771218750\,Y^{4} - 115468740156070546875\,Y^{2} + 17221204161424265625)T^{4} + 67806897644390625\,Y^{4} +$
$(135\,Y^{28}+100170\,Y^{26}+29387925\,Y^{24}+4246092900\,Y^{22}+358633184175\,Y^{20}+19028361381750\,Y^{18}+581147239609125\,Y^{16}+$
$7773885322875000\,Y^{14}+126384813847648125\,Y^{12}+1109621551203033750\,Y^{10}+3306804953883834375\,Y^{8}+12758673814194262500\,Y^{6}+$
$2447767199204578125\,Y^{4}+2944864928980406250\,Y^{2}+295212212120109375)T^{2}+5881515673359375\,Y^{2}+19937341265625.$