

Pensieve header: Analysis of k=2 invariants in QU: Aiming to find the relationship with OP2.

```
In[ ]:= SetDirectory["C:\\drorbn\\AcademicPensieve\\Projects\\SL2Portfolio"];
<< KnotTheory`
<< "SL2PortfolioProgram.m"
```

ParentDirectory: Argument File should be a positive machine-size integer, a nonempty string, or a File specification.

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ToFileName: String or list of strings expected at position 1 in ToFileName[{File, WikiLink, mathematica}].

ToFileName: String or list of strings expected at position 1 in ToFileName[{File, QuantumGroups}].

Loading KnotTheory` version of January 20, 2015, 10:42:19.1122.

Read more at <http://katlas.org/wiki/KnotTheory>.

```
In[ ]:= OverbayP2Data = Get["C:\\drorbn\\AcademicPensieve\\People\\Overbay\\OverbayP2Data.m"];
OP2[K_Knot] := K /. OverbayP2Data /. T -> T^{1/2};
```

```
In[ ]:= {Length[OverbayP2Data], Last[OverbayP2Data]}
```

$$\text{Out[]:= } \left\{ 35, \text{Knot}[8, 21] \rightarrow 2670 + \frac{1}{T^{14}} + \frac{4}{T^{12}} - \frac{60}{T^{10}} + \frac{276}{T^8} - \frac{775}{T^6} + \frac{1550}{T^4} - \frac{2331}{T^2} - 2331 T^2 + 1550 T^4 - 775 T^6 + 276 T^8 - 60 T^{10} + 4 T^{12} + T^{14} \right\}$$

```
In[ ]:= $p = 5; $k = 2; $U = QU;
```

```
In[ ]:= SC@p_ := Collect[C@0_CU[{y, a, x}, p] /. {CU -> Times, \gamma | \hbar -> 1}, \epsilon, Simplify];
SQ@p_ := Collect[Q@0_QU[{y, a, x}, p] /. {QU -> Times, \gamma | \hbar -> 1}, \epsilon, Simplify];
```

```
In[ ]:= E[L_, Q_, P_]$_k := E[L, Q, Series[Normal@P, {\epsilon, 0, $k}]];
E_d_r_[L_, Q_, P_]$_k := E_d_r_@E[L, Q, P]$_k;
E3@E[\omega_, L_, Q_, Ps_] := CF / @E[L, \omega^{-1} Q, \omega^{-1} (\omega^{-4} \epsilon)^{-1+Range@Length@Ps}.Ps]$_k;
E4@E[L_, Q_, P_] := Module[
  { \omega = Normal[P]^{-1} /. \epsilon -> 0, Ps = CoefficientList[P, \epsilon] },
  CF / @E[\omega, L, \omega Q, \omega^{-3+4 Range@Length@Ps} Ps] ];
E3@E_sp__[as_] := E3@E[as] /. E -> E_sp;
E4@E_sp__[as_] := E4@E[as] /. E -> E_sp;
```

```
In[ ]:= Clear[QP, \omega];
QP[Knot[n_, k_]] := QP[Knot[n, k]] = Collect[Module[{fname},
  fname = "../SL2Invariant/k=2/Data/" <> ToString[n] <> "_" <> ToString[k] <> ".m";
  Collect[E3[Get[fname][[2, 2]]][[3]] // Normal, \epsilon, Simplify]
], \epsilon, CF];
\omega[K_Knot] := \omega[K] = Factor[(QP@K /. \epsilon -> 0)^{-1}];
C_{r,d}[K_Knot] :=
  Factor[SeriesCoefficient[QP[K], {y, 0, 0}, {\epsilon, 0, k}, {a, 0, d}] \omega[K]^{1+2k-d}]
```

```
In[ ]:=
H[p_] := If[TrueQ@Simplify[p == (p /. T -> 1/T)],
  σ@@CoefficientList[Expand@Together[p] /. T^n - /; n < 0 => 0, T], p];
H[p_] := If[TrueQ@Simplify[p == (p /. T -> 1/T)],
  Style[Expand@Together[p] /. T^n - /; n < 0 => 0, Background -> Yellow], p];
H[p_] := If[TrueQ@Simplify[p == (p /. T -> 1/T)], Style[p, Background -> Yellow], p];
H[L_List] := H/@L;
```

```
In[ ]:=
MatrixForm[Table[
  H/@Factor/@{ω[K], c0,0[K], c1,0[K], c1,1[K], c2,0[K], c2,1[K], c2,2[K] OP2[K]},
  {K, AllKnots[{3, 7}]}
]]
```

Out[]//MatrixForm=

$\frac{1-T+T^2}{T}$	1	$\frac{(-1+T)(2-T+T^2)}{T^2}$	$\frac{2(-1+T)(1+T)}{T}$
$-\frac{1-3T+T^2}{T}$	1	$\frac{(-1+T)(1+T)(1-3T+T^2)}{T^2}$	$-\frac{2(-1+T)(1+T)}{T}$
$\frac{1-T+T^2-T^3+T^4}{T^2}$	1	$\frac{(-1+T)(4-3T+5T^2-3T^3+3T^4-T^5+T^6)}{T^4}$	$\frac{2(-1+T)(1+T)(2-T+2T^2)}{T^2}$
$\frac{2-3T+2T^2}{T}$	1	$-\frac{(-1+T)(-9+11T-7T^2+T^3)}{T^2}$	$\frac{4(-1+T)(1+T)}{T}$
$-\frac{(-2+T)(-1+2T)}{T}$	1	$\frac{(-1+T)(5-11T-T^2+3T^3)}{T^2}$	$-\frac{4(-1+T)(1+T)}{T}$
$-\frac{1-3T+3T^2-3T^3+T^4}{T^2}$	1	$\frac{(-1+T)(3-12T+16T^2-12T^3+4T^4-2T^6+T^7)}{T^4}$	$-\frac{2(-1+T)(1+T)(2-3T+2T^2)}{T^2}$
$\frac{1-3T+5T^2-3T^3+T^4}{T^2}$	1	$\frac{(-1+T)(1+T)(2-3T+2T^2)(1-3T+5T^2-3T^3+T^4)}{T^4}$	$\frac{2(-1+T)(1+T)(2-3T+2T^2)}{T^2}$
$\frac{1-T+T^2-T^3+T^4-T^5+T^6}{T^3}$	1	$\frac{(-1+T)(6-5T+9T^2-7T^3+9T^4-6T^5+6T^6-3T^7+3T^8-T^9+T^{10})}{T^6}$	$\frac{2(-1+T)(1+T)(3-2T+4T^2-2T^3+T^4)}{T^3}$
$\frac{3-5T+3T^2}{T}$	1	$-\frac{(-1+T)(-23+36T-24T^2+5T^3)}{T^2}$	$\frac{6(-1+T)(1+T)}{T}$
$\frac{2-3T+3T^2-3T^3+2T^4}{T^2}$	1	$\frac{(-1+T)(-1+7T-13T^2+24T^3-32T^4+35T^5-27T^6+17T^7)}{T^4}$	$\frac{2(-1+T)(1+T)(4-3T+4T^2)}{T^2}$
$\frac{4-7T+4T^2}{T}$	1	$\frac{4(-1+T)(-2+11T-17T^2+10T^3)}{T^2}$	$\frac{8(-1+T)(1+T)}{T}$
$\frac{2-4T+5T^2-4T^3+2T^4}{T^2}$	1	$-\frac{(-1+T)(-17+41T-65T^2+65T^3-49T^4+25T^5-9T^6+T^7)}{T^4}$	$\frac{8(-1+T)(1+T)(1-T+T^2)}{T^2}$
$-\frac{1-5T+7T^2-5T^3+T^4}{T^2}$	1	$\frac{(-1+T)(3-22T+53T^2-53T^3+25T^4-T^5-4T^6+T^7)}{T^4}$	$-\frac{2(-2+T)(-1+T)(1+T)(-1+2T)}{T^2}$
$\frac{1-5T+9T^2-5T^3+T^4}{T^2}$	1	$\frac{(-1+T)(2-13T+27T^2-9T^3-31T^4+33T^5-13T^6+2T^7)}{T^4}$	$\frac{2(-2+T)(-1+T)(1+T)(-1+2T)}{T^2}$

```
In[ ]:=
p1[K_Knot] := p1[K] = Factor[ $\frac{T(-c_{1,0}[K] + \omega[K] T \partial_T \omega[K])}{(T-1)^2}$ ];
ρ1[K_Knot] := ρ1[K] = Factor[ $\frac{(T-1)^2}{T} p1[K]$ ];
```

```
In[ ]:=
MyCollect[ε_, vs_List] := MyCollect[ε, vs, Identity];
MyCollect[ε_, vs_List, simp_] :=
  Total[CoefficientRules[ε, vs] /. ((ps_ -> c_) => simp[c] Times @@ (vs^ps))]
```

```
In[ ]:= Monitor[Total[Table[
  Simplify[(c_{0,0}[K] == 1) ^ (2 T \partial_T \omega[K] == c_{1,1}[K]) ^
    (c_{2,1}[K] == \frac{2(-1+T) p1[K] ((1+T) \omega[K] - 3(-1+T) T \partial_T \omega[K])}{T} +
      2 \omega[K] ((-1+T)^2 \partial_T p1[K] + 2 T^2 (\partial_T \omega[K])^2 - T \omega[K] (\partial_T \omega[K] + T \partial_{T,T} \omega[K])))] ^
    (c_{2,2}[K] == -2 T (-2 T (\partial_T \omega[K])^2 + \omega[K] (\partial_T \omega[K] + T \partial_{T,T} \omega[K])))],
  {K, AllKnots[{3, 10}]}],
  K]
```

Out[]:= 249 True

```
In[ ]:= MatrixForm[Table[
  H /@ Together /@
  Expand /@ {\omega[K], p1[K], \rho1[K], -2 c_{2,0}[K] + \omega[K] c_{2,1}[K], OP2[K], OP2[K] / \omega[K]},
  {K, AllKnots[{3, 8}]}
]]
```

Out[]//MatrixForm=

$\frac{1-T+T^2}{T}$	$\frac{1+T^2}{T}$	$\frac{1-2T+2T^2-2T^3}{T^2}$
$\frac{-1+3T-T^2}{T}$	0	0
$\frac{1-T+T^2-T^3+T^4}{T^2}$	$\frac{2+3T^2+3T^4+2T^6}{T^3}$	$\frac{2-4T+5T^2-6T^3+6T^4-6T^5}{T^4}$
$\frac{2-3T+2T^2}{T}$	$\frac{5-4T+5T^2}{T}$	$\frac{5-14T+18T^2-14T^3}{T^2}$
$\frac{-2+5T-2T^2}{T}$	$\frac{1-4T+T^2}{T}$	$\frac{1-6T+10T^2-6T^3}{T^2}$
$\frac{-1+3T-3T^2+3T^3-T^4}{T^2}$	$\frac{1-4T+4T^2-4T^3+4T^4-4T^5+T^6}{T^3}$	$\frac{1-6T+13T^2-16T^3+16T^4-16T^5}{T^4}$
$\frac{1-3T+5T^2-3T^3+T^4}{T^2}$	0	0
$\frac{1-T+T^2-T^3+T^4-T^5+T^6}{T^3}$	$\frac{3+5T^2+6T^4+6T^6+5T^8+3T^{10}}{T^5}$	$\frac{3-6T+8T^2-10T^3+11T^4-12T^5+12T^6-12T^7}{T^6}$
$\frac{3-5T+3T^2}{T}$	$\frac{2(7-8T+7T^2)}{T}$	$\frac{2(7-22T+30T^2-22T^3)}{T^2}$
$\frac{2-3T+3T^2-3T^3+2T^4}{T^2}$	$\frac{-9+8T-16T^2+12T^3-16T^4+8T^5-9T^6}{T^3}$	$\frac{-9+26T-41T^2+52T^3-56T^4+52T^5-27T^6}{T^4}$
$\frac{4-7T+4T^2}{T}$	$\frac{-8(3-4T+3T^2)}{T}$	$\frac{-8(3-10T+14T^2-10T^3)}{T^2}$
$\frac{2-4T+5T^2-4T^3+2T^4}{T^2}$	$\frac{9-16T+29T^2-28T^3+29T^4-16T^5+9T^6}{T^3}$	$\frac{9-34T+70T^2-102T^3+114T^4-102T^5+54T^6-27T^7}{T^4}$
$\frac{-1+5T-7T^2+5T^3-T^4}{T^2}$	$\frac{1-8T+19T^2-20T^3+19T^4-8T^5+T^6}{T^3}$	$\frac{1-10T+36T^2-66T^3+78T^4-66T^5+27T^6}{T^4}$
$\frac{1-5T+9T^2-5T^3+T^4}{T^2}$	$\frac{-3+8T-3T^2}{T}$	$\frac{-3+14T-22T^2+14T^3}{T^2}$
$\frac{-3+7T-3T^2}{T}$	$\frac{5-16T+5T^2}{T}$	$\frac{5-26T+42T^2-26T^3}{T^2}$
$\frac{-1+3T-3T^2+3T^3-3T^4+3T^5-T^6}{T^3}$	$\frac{2-8T+10T^2-12T^3+13T^4-12T^5+13T^6-12T^7+10T^8-8T^9+2T^{10}}{T^5}$	$\frac{2-12T+28T^2-40T^3+47T^4-50T^5+50T^6-50T^7+27T^8-12T^9+2T^{10}}{T^6}$
$\frac{-4+9T-4T^2}{T}$	0	0
$\frac{-2+5T-5T^2+5T^3-2T^4}{T^2}$	$\frac{3-8T+6T^2-4T^3+6T^4-8T^5+3T^6}{T^3}$	$\frac{3-14T+25T^2-24T^3+20T^4-24T^5+10T^6-6T^7+T^8}{T^4}$
$\frac{-1+3T-4T^2+5T^3-4T^4+3T^5-T^6}{T^3}$	$\frac{-2+8T-13T^2+20T^3-22T^4+24T^5-22T^6+20T^7-13T^8+8T^9-2T^{10}}{T^5}$	$\frac{-2+12T-31T^2+54T^3-75T^4+88T^5-92T^6+88T^7-42T^8+12T^9-2T^{10}}{T^6}$

$\frac{T^3}{T^2}$	$\frac{5-20T+28T^2-32T^3+28T^4-20T^5+5T^6}{T^3}$	$\frac{5-30T+73T^2-108T^3+120T^4-108T^5+50T^6}{T^4}$
$\frac{-2+6T-7T^2+6T^3-2T^4}{T^2}$	$\frac{-1+4T-10T^2+12T^3-13T^4+12T^5-13T^6+12T^7-10T^8+4T^9-T^{10}}{T^5}$	$\frac{-1+6T-19T^2+36T^3-47T^4+50T^5-50T^6+50T^7-34T^8+21T^9-10T^{10}}{T^6}$
$\frac{1-3T+5T^2-5T^3+5T^4-3T^5+T^6}{T^3}$	$\frac{-1+4T-12T^2+16T^3-12T^4+4T^5-T^6}{T^3}$	$\frac{-1+6T-21T^2+44T^3-56T^4+44T^5-34T^6+21T^7-10T^8}{T^4}$
$\frac{2-6T+9T^2-6T^3+2T^4}{T^2}$	0	0
$\frac{-1+3T-5T^2+7T^3-5T^4+3T^5-T^6}{T^3}$	$\frac{-1+4T-11T^2+16T^3-21T^4+20T^5-21T^6+16T^7-11T^8+4T^9-T^{10}}{T^5}$	$\frac{-1+6T-20T^2+42T^3-64T^4+78T^5-82T^6+78T^7-54T^8+33T^9-16T^{10}}{T^6}$
$\frac{1-3T+6T^2-7T^3+6T^4-3T^5+T^6}{T^3}$	$\frac{5-24T+39T^2-44T^3+39T^4-24T^5+5T^6}{T^3}$	$\frac{5-34T+92T^2-146T^3+166T^4-146T^5+92T^6-54T^7+33T^8-16T^9}{T^4}$
$\frac{-2+7T-9T^2+7T^3-2T^4}{T^2}$	0	0
$\frac{1-7T+13T^2-7T^3+T^4}{T^2}$	$\frac{-1+4T-14T^2+20T^3-14T^4+4T^5-T^6}{T^3}$	$\frac{-1+6T-23T^2+52T^3-68T^4+52T^5-42T^6+27T^7-14T^8+6T^9-T^{10}}{T^4}$
$\frac{2-7T+11T^2-7T^3+2T^4}{T^2}$	$\frac{5-28T+57T^2-68T^3+57T^4-28T^5+5T^6}{T^3}$	$\frac{5-38T+118T^2-210T^3+250T^4-210T^5+118T^6-78T^7+42T^8-18T^9+7T^{10}}{T^4}$
$\frac{-2+8T-11T^2+8T^3-2T^4}{T^2}$	$\frac{21-64T+120T^2-140T^3+120T^4-64T^5+21T^6}{T^3}$	$\frac{21-106T+269T^2-444T^3+520T^4-444T^5+269T^6-106T^7+42T^8-18T^9+7T^{10}}{T^4}$
$\frac{3-8T+11T^2-8T^3+3T^4}{T^2}$	$\frac{1-6T+17T^2-28T^3+35T^4-36T^5+35T^6-28T^7+17T^8-6T^9+T^{10}}{T^5}$	$\frac{1-8T+30T^2-68T^3+108T^4-134T^5+142T^6-134T^7+108T^8-68T^9+30T^{10}}{T^6}$
$\frac{1-4T+8T^2-9T^3+8T^4-4T^5+T^6}{T^3}$	0	0
$\frac{-1+4T-8T^2+11T^3-8T^4+4T^5-T^6}{T^3}$	0	0
$\frac{-1+5T-10T^2+13T^3-10T^4+5T^5-T^6}{T^3}$	$\frac{-3-4T^3-3T^4-3T^5-4T^7-3T^{10}}{T^5}$	$\frac{-3+6T-3T^2-4T^3+5T^4+2T^5-6T^6+2T^7+6T^8-3T^9+T^{10}}{T^6}$
$\frac{1-T+T^3-T^5+T^6}{T^3}$	$\frac{4(1-T+T^2)}{T}$	$\frac{4(1-3T+4T^2-3T^3+3T^4-2T^5+T^6)}{T^2}$
$\frac{1-2T+3T^2-2T^3+T^4}{T^2}$	$\frac{1-8T+16T^2-20T^3+16T^4-8T^5+T^6}{T^3}$	$\frac{1-10T+33T^2-60T^3+72T^4-60T^5+33T^6-10T^7+T^8}{T^4}$
$\frac{-1+4T-5T^2+4T^3-T^4}{T^2}$		

```

In[ ]:= MatrixForm[Table[
  Together /@ Expand /@
    {ω[K], ∂Tω[K], p1[K], ρ1[K], -2 c2,0[K] + ω[K] c2,1[K], OP2[K], OP2[K] / ω[K]},
  {K, AllKnots[{3, 8]}]
} /. T → 1]

```

Out[]//MatrixForm=

$$\begin{pmatrix} 1 & 0 & 2 & 0 & -4 & 1 & 1 \\ 1 & 0 & 0 & 0 & 4 & -1 & -1 \\ 1 & 0 & 10 & 0 & -12 & 3 & 3 \\ 1 & 0 & 6 & 0 & -8 & 2 & 2 \\ 1 & 0 & -2 & 0 & 8 & -2 & -2 \\ 1 & 0 & -2 & 0 & 4 & -1 & -1 \\ 1 & 0 & 0 & 0 & -4 & 1 & 1 \\ 1 & 0 & 28 & 0 & -24 & 6 & 6 \\ 1 & 0 & 12 & 0 & -12 & 3 & 3 \\ 1 & 0 & -22 & 0 & -20 & 5 & 5 \\ 1 & 0 & -16 & 0 & -16 & 4 & 4 \\ 1 & 0 & 16 & 0 & -16 & 4 & 4 \\ 1 & 0 & 4 & 0 & -4 & 1 & 1 \\ 1 & 0 & 2 & 0 & 4 & -1 & -1 \\ 1 & 0 & -6 & 0 & 12 & -3 & -3 \\ 1 & 0 & -2 & 0 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 & 16 & 4 & 4 \\ 1 & 0 & -2 & 0 & 12 & -3 & -3 \\ 1 & 0 & 6 & 0 & 4 & -1 & -1 \\ 1 & 0 & -6 & 0 & 8 & -2 & -2 \\ 1 & 0 & -4 & 0 & -8 & 2 & 2 \\ 1 & 0 & -2 & 0 & -8 & 2 & 2 \\ 1 & 0 & 0 & 0 & 8 & -2 & -2 \\ 1 & 0 & -6 & 0 & -12 & 3 & 3 \\ 1 & 0 & -4 & 0 & 4 & -1 & -1 \\ 1 & 0 & 0 & 0 & 12 & -3 & -3 \\ 1 & 0 & -2 & 0 & -4 & 1 & 1 \\ 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 1 & 0 & 14 & 0 & -16 & 4 & 4 \\ 1 & 0 & 2 & 0 & -4 & 1 & 1 \\ 1 & 0 & 0 & 0 & 4 & -1 & -1 \\ 1 & 0 & 0 & 0 & -4 & 1 & 1 \\ 1 & 0 & -20 & 0 & -20 & 5 & 5 \\ 1 & 0 & 4 & 0 & -8 & 2 & 2 \\ 1 & 0 & -2 & 0 & 0 & 0 & 0 \end{pmatrix}$$


```

In[ ]:= MatrixForm@H[mat = Table[
  Factor@{
    -2 c2,0[K] + ω[K] c2,1[K],
    ω[K]2 ρ1[K], ω[K] ρ1[K], ρ1[K], (T - T-1) ω[K] ρ1[K] T ∂Tω[K],
    (T - T-1) ρ1[K] T ∂Tω[K], (T - T-1) T ∂Tρ1[K], (T - T-1) ω[K] T ∂Tρ1[K], (T - T-1)
    ω[K]2 T ∂Tρ1[K], T ∂T(T ∂Tρ1[K]), ω[K] T ∂T(T ∂Tρ1[K]), T ∂T(T ∂T(ω[K] ρ1[K])),
    ρ1[K]2, ρ1[K] (T - T-1) T ∂Tρ1[K],
    ω[K]4, ω[K]3, ω[K]2, ω[K],
    (T - T-1) ω[K]3 T ∂Tω[K],
    (T - T-1) ω[K]2 T ∂Tω[K], (T - T-1) ω[K] T ∂Tω[K], (T - T-1) T ∂Tω[K],
    ω[K]2 (T ∂Tω[K])2, ω[K] (T ∂Tω[K])2, (T ∂Tω[K])2,
    ω[K]3 T ∂T(T ∂Tω[K]), ω[K]2 T ∂T(T ∂Tω[K]), ω[K] T ∂T(T ∂Tω[K]), T ∂T(T ∂Tω[K]),
    (T - T-1) ω[K] T ∂T(T ∂T(T ∂Tω[K])), (T - T-1) T ∂T(T ∂T(T ∂Tω[K]))
  },
  {K, AllKnots[{3, 9]}}
]];
Dimensions[mat]
MatrixRank[mat /. T -> 104]
NullSpace[mat /. T -> 104] // MatrixForm

```

Out[]:= {84, 31}

Out[]:= 31

Out[]//MatrixForm=

{ }

```

In[ ]:= (mat0 = Map[Coefficient[#, T, 0] &, mat, {2}]) // MatrixForm

```

Out[]//MatrixForm=

-38	16	-6	2	6	-2	4	-8	16	0	-4	0
-110	0	0	0	0	0	0	0	0	0	0	0
-510	128	28	6	50	10	12	44	144	0	52	0
-1362	682	-110	18	268	-52	28	-124	604	0	-56	0
-1598	578	74	10	228	36	12	68	428	0	24	0
-6410	1696	-170	16	612	-58	32	-256	1936	0	-200	0
-8510	0	0	0	0	0	0	0	0	0	0	0
-2772	496	-78	12	196	-28	24	-124	576	0	-292	0
-11718	5472	-564	60	2172	-276	88	-608	4672	0	-264	0
-25736	-7498	-644	-56	-3110	-298	-104	-908	-7924	0	-968	0
-39188	-18800	1424	-112	-7488	704	-160	1504	-15776	0	640	0
-76414	25034	1666	114	10832	896	204	2140	24796	0	1936	0
-55946	21448	-1278	78	8818	-644	132	-1572	20624	0	-948	0
-53622	-5984	-344	-22	-3194	-246	-28	-284	-3600	0	-164	0
-10542	5088	450	42	2022	222	52	424	3856	0	156	0
-63556	12560	812	50	4686	252	100	1320	14960	0	2148	0
-20364	0	0	0	0	0	0	0	0	0	0	0
-53540	7854	-440	20	2094	-30	48	-812	10748	0	-640	0
-135628	-32378	-1722	-92	-13148	-808	-176	-2472	-35844	0	-3476	0
-146916	49632	-2428	120	20436	-1188	216	-3192	50328	0	-2464	0
-143216	-23136	1104	-50	-8294	366	-100	1752	-27904	0	2276	0
-133180	-23952	-1116	-56	-11628	-724	-88	-1192	-19544	0	-864	0
-162396	0	0	0	0	0	0	0	0	0	0	0
-251346	-47852	1978	-82	-18978	912	-156	2820	-53112	0	3228	0
-263172	93594	-3906	166	38288	-1932	292	-5028	93796	0	-3516	0
-185846	0	0	0	0	0	0	0	0	0	0	0
-227432	-38986	-1568	-68	-18690	-998	-104	-1652	-31532	0	-1096	0

-465 478	179 570	-6582	250	76 064	-3488	420	-8012	170 644	0	-5248	0
-1 228 222	418 246	14 438	520	183 632	8072	888	17 620	396 052	0	13 560	0
-698 666	138 428	-4422	142	55 484	-2068	268	-6236	151 572	0	-6824	0
-717 954	0	0	0	0	0	0	0	0	0	0	0
-1 567 262	0	0	0	0	0	0	0	0	0	0	0
-1060	-110	-24	-6	-42	-24	-4	12	4	0	-112	0
-3640	768	104	16	480	96	24	80	408	0	80	0
-31 226	11 886	-906	72	5280	-512	120	-1068	10 804	0	-744	0
-9780	1360	166	20	540	60	40	268	1600	0	1028	0
-56 420	23 500	-1780	140	9360	-880	200	-1880	19 720	0	-800	0
-160 976	-32 410	1894	-112	-13 446	822	-216	2856	-36 124	0	5928	0
-213 338	61 584	3290	180	26 144	1630	328	4488	63 408	0	4640	0
-300 294	-129 090	6390	-330	-51 540	3180	-460	6620	-106 540	0	2760	0
-659 788	149 930	-6240	264	64 926	-3178	504	-8788	159 660	0	-15 440	0
-819 394	260 376	10 198	414	114 058	5640	724	12 732	251 248	0	10 684	0
-342 134	86 986	-3142	114	33 888	-1440	204	-4148	89 948	0	-2656	0
-1 151 564	281 412	-10 284	388	125 792	-5792	728	-13 736	288 408	0	-21 288	0
-1 259 748	-389 300	-13 316	-468	-167 520	-7008	-840	-17 384	-389 768	0	-16 256	0
-895 336	-227 608	-7702	-260	-93 112	-3462	-496	-11 156	-248 912	0	-14 612	0
-841 572	335 090	-10 900	368	142 102	-5790	608	-13 036	312 988	0	-8048	0
-2 095 210	-663 392	-20 332	-644	-289 684	-11 124	-1136	-25 688	-646 168	0	-22 320	0
-642 168	-174 898	-5542	-190	-83 992	-3508	-276	-5580	-134 772	0	-3316	0
-1 313 504	-543 664	15 932	-488	-233 100	8636	-784	18 512	-494 032	0	10 928	0
-2 949 428	-747 004	21 756	-658	-337 124	12 504	-1220	28 544	-752 376	0	40 376	0
-1 089 796	155 056	-4274	104	46 328	-772	224	-7476	205 600	0	-8164	0
-3 159 722	1 031 298	28 610	826	452 980	15 956	1428	35 324	985 940	0	28 648	0
-836 608	111 696	3084	88	44 692	1516	144	3760	107 856	0	2032	0
-2 080 192	614 504	16 966	482	266 698	9166	884	22 396	626 352	0	24 728	0
-1 868 380	-787 882	20 938	-582	-334 784	11 228	-924	24 188	-714 220	0	13 684	0
-1 540 398	-249 564	6340	-152	-84 974	2034	-308	10 036	-306 120	0	10 372	0
-4 797 258	1 581 696	40 086	1062	698 170	22 610	1804	48 552	1 485 872	0	37 092	0
-1 595 654	84 760	2304	72	53 552	2144	112	1880	47 496	0	2152	0
-2 841 166	1 111 042	-26 960	682	478 872	-14 688	1128	-32 124	1 032 012	0	-20 856	0
-2 381 116	-603 000	14 482	-354	-255 182	7436	-652	19 380	-622 208	0	19 344	0
-2 171 344	164 248	4046	112	96 388	3362	176	3708	106 416	0	3756	0
-3 186 008	862 254	-19 284	450	382 198	-10 880	796	-24 340	842 236	0	-22 840	0
-2 840 192	499 442	-10 804	230	179 982	-4284	444	-15 988	583 220	0	-14 512	0
-2 863 228	206 978	4644	114	112 408	3438	184	4712	152 316	0	4340	0
-4 319 004	1 256 080	-26 110	568	558 272	-14 808	992	-32 524	1 211 744	0	-28 668	0
-5 736 454	-1 485 840	28 510	-562	-635 112	15 052	-1016	37 324	-1 505 496	0	35 032	0
-5 100 726	323 596	6376	140	185 992	5144	220	5952	215 212	0	5744	0
-8 043 256	625 898	10 706	198	325 562	7450	320	11 248	483 424	0	9488	0
-596 734	251 712	-10 620	468	100 548	-5292	648	-10 944	206 784	0	-4536	0
-1 372 104	-374 394	-11 368	-350	-156 988	-5662	-656	-15 712	-397 500	0	-18 828	0
-1 204 192	151 274	3816	100	60 938	1902	160	4556	143 380	0	2384	0
-12 103 772	4 000 568	79 972	1668	1 755 976	44 688	2840	97 312	3 777 224	0	73 840	0
-5 255 776	-2 120 644	44 032	-956	-907 112	23 816	-1544	51 576	-1 944 944	0	30 976	0
-14 730 526	4 112 120	-62 430	986	1 796 314	-34 472	1732	-78 740	4 023 528	0	-68 180	0
-2 129 794	582 566	13 874	356	277 872	8736	536	14 468	465 908	0	9144	0
-3128	92	-18	10	156	-88	8	56	-176	0	16	0
-28 462	-3144	-226	-18	-828	142	-32	-632	-4320	0	-880	0
-32 126	8394	576	42	3976	352	64	604	6652	0	360	0
-200 284	82 084	-4094	214	35 740	-2264	336	-4608	71 952	0	-2624	0
-4222	1734	222	30	684	108	36	204	1284	0	72	0
-288 924	-34 662	1356	-44	-8890	-46	-96	2708	-49 528	0	3336	0
-241 202	-101 184	4274	-188	-42 184	2230	-296	4920	-91 664	0	2608	0
-373 944	-117 224	-5282	-242	-49 596	-2688	-440	-6992	-119 096	0	-6432	0

```
In[ ]:= s = 10^5;
(red = LatticeReduce[Prepend[mat0, s IdentityMatrix[Dimensions[mat0][[2]]][[1]]^T]);
rel = LinearSolve[mat0, Rest[red]][[All, Position[red[[1], s][[1, 1]]]]
Factor@Expand[mat.rel] // Column
```

```
Out[ ]:= {1, -1, 94, -1938, 2, -40, 1181, -88, 0, 0, 31, 0, 13, -13, 9, 312,
-982, -11259, -22, -539, -188, 8370, -9, -18, -1715, 0, 0, 0, 0, -255, 0}

- (46+605 T-3718 T^2+99 T^3+6374 T^4+4988 T^5+6374 T^6+99 T^7-3718 T^8+605 T^9+46 T^10) / T^5
- (22-738 T+4644 T^2+1113 T^3-10812 T^4+23458 T^5-10812 T^6+1113 T^7+4644 T^8-738 T^9+22 T^10) / T^5
- (1/T^9) (244 - 877 T + 3499 T^2 - 8295 T^3 + 4197 T^4 + 11268 T^5 - 24794 T^6 + 20511 T^7 + 7452 T^8 - 15098 T^9 +
7452 T^10 + 20511 T^11 - 24794 T^12 + 11268 T^13 + 4197 T^14 - 8295 T^15 + 3499 T^16 - 877 T^17 + 244 T^18)
- (962+2035 T-25020 T^2+40618 T^3-18434 T^4+11234 T^5-18434 T^6+40618 T^7-25020 T^8+2035 T^9+962 T^10) / T^5
- (370-7573 T+34484 T^2-30340 T^3-10290 T^4+38734 T^5-10290 T^6-30340 T^7+34484 T^8-7573 T^9+370 T^10) / T^5
- (1/T^9) (92 - 954 T + 2753 T^2 + 1127 T^3 - 24011 T^4 + 74708 T^5 - 105408 T^6 + 65811 T^7 - 13460 T^8 + 10724 T^9 -
13460 T^10 + 65811 T^11 - 105408 T^12 + 74708 T^13 - 24011 T^14 + 1127 T^15 + 2753 T^16 - 954 T^17 + 92 T^18)
- (1/T^9) (44 - 439 T + 3293 T^2 - 15487 T^3 + 50059 T^4 - 98589 T^5 + 103566 T^6 - 44635 T^7 - 4884 T^8 + 26068 T^9 -
4884 T^10 - 44635 T^11 + 103566 T^12 - 98589 T^13 + 50059 T^14 - 15487 T^15 + 3293 T^16 - 439 T^17 + 44 T^18)
- (1/T^13) (750 - 2792 T + 5331 T^2 - 4133 T^3 - 3755 T^4 + 11444 T^5 - 30997 T^6 + 68833 T^7 - 70664 T^8 + 33188 T^9 -
11047 T^10 + 17089 T^11 + 2558 T^12 - 21402 T^13 + 2558 T^14 + 17089 T^15 - 11047 T^16 + 33188 T^17 -
70664 T^18 + 68833 T^19 - 30997 T^20 + 11444 T^21 - 3755 T^22 - 4133 T^23 + 5331 T^24 - 2792 T^25 + 750 T^26)
- (6626-10390 T-51052 T^2+129549 T^3-85272 T^4+32266 T^5-85272 T^6+129549 T^7-51052 T^8-10390 T^9+6626 T^10) / T^5
- (1/T^9) (5060 - 26369 T + 67560 T^2 - 108276 T^3 + 182226 T^4 - 223237 T^5 +
125996 T^6 - 15253 T^7 + 8220 T^8 - 18550 T^9 + 8220 T^10 - 15253 T^11 + 125996 T^12 -
223237 T^13 + 182226 T^14 - 108276 T^15 + 67560 T^16 - 26369 T^17 + 5060 T^18)
- (2(10688-51056 T+137728 T^2-181579 T^3+84640 T^4+5622 T^5+84640 T^6-181579 T^7+137728 T^8-51056 T^9+10688 T^10)) / T^5
- (1/T^9) (4772 - 32365 T + 125512 T^2 - 335032 T^3 + 604812 T^4 - 738146 T^5 +
611296 T^6 - 327124 T^7 + 97808 T^8 - 12122 T^9 + 97808 T^10 - 327124 T^11 + 611296 T^12 -
738146 T^13 + 604812 T^14 - 335032 T^15 + 125512 T^16 - 32365 T^17 + 4772 T^18)
- (1/T^9) (92 - 1598 T + 10373 T^2 - 30383 T^3 + 26473 T^4 + 90023 T^5 -
301702 T^6 + 358209 T^7 - 170894 T^8 + 50490 T^9 - 170894 T^10 + 358209 T^11 -
301702 T^12 + 90023 T^13 + 26473 T^14 - 30383 T^15 + 10373 T^16 - 1598 T^17 + 92 T^18)
- (1/T^9) (44 - 747 T + 6879 T^2 - 40655 T^3 + 160193 T^4 - 407688 T^5 +
628218 T^6 - 522735 T^7 + 158480 T^8 + 47814 T^9 + 158480 T^10 - 522735 T^11 +
628218 T^12 - 407688 T^13 + 160193 T^14 - 40655 T^15 + 6879 T^16 - 747 T^17 + 44 T^18)
- (2342-34981 T+136294 T^2-158599 T^3+35618 T^4+50932 T^5+35618 T^6-158599 T^7+136294 T^8-34981 T^9+2342 T^10) / T^5
- (1/T^13) (366 - 4009 T + 19193 T^2 - 57167 T^3 + 130561 T^4 - 250012 T^5 + 385365 T^6 -
433749 T^7 + 354612 T^8 - 247990 T^9 + 178053 T^10 - 147083 T^11 + 132494 T^12 - 109224 T^13 +
132494 T^14 - 147083 T^15 + 178053 T^16 - 247990 T^17 + 354612 T^18 - 433749 T^19 +
385365 T^20 - 250012 T^21 + 130561 T^22 - 57167 T^23 + 19193 T^24 - 4009 T^25 + 366 T^26)
- (2(2816-36368 T+141448 T^2-186961 T^3+76456 T^4+11170 T^5+76456 T^6-186961 T^7+141448 T^8-36368 T^9+2816 T^10)) / T^5
```

$$\begin{aligned}
& -\frac{1}{T^9} \left(1124 - 9305 T + 23\,164 T^2 - 1634 T^3 - 101\,074 T^4 + \right. \\
& \quad \left. 277\,963 T^5 - 366\,100 T^6 + 238\,191 T^7 - 55\,972 T^8 - 682 T^9 - 55\,972 T^{10} + 238\,191 T^{11} - \right. \\
& \quad \left. 366\,100 T^{12} + 277\,963 T^{13} - 101\,074 T^{14} - 1634 T^{15} + 23\,164 T^{16} - 9305 T^{17} + 1124 T^{18} \right) \\
& -\frac{1}{T^{13}} \left(390 - 4277 T + 21\,547 T^2 - 68\,447 T^3 + 156\,036 T^4 - 273\,626 T^5 + 411\,409 T^6 - \right. \\
& \quad \left. 557\,353 T^7 + 618\,416 T^8 - 501\,909 T^9 + 274\,098 T^{10} - 96\,304 T^{11} + 20\,166 T^{12} + 11\,252 T^{13} + \right. \\
& \quad \left. 20\,166 T^{14} - 96\,304 T^{15} + 274\,098 T^{16} - 501\,909 T^{17} + 618\,416 T^{18} - 557\,353 T^{19} + \right. \\
& \quad \left. 411\,409 T^{20} - 273\,626 T^{21} + 156\,036 T^{22} - 68\,447 T^{23} + 21\,547 T^{24} - 4277 T^{25} + 390 T^{26} \right) \\
& -\frac{1}{T^9} \left(1924 - 20\,113 T + 81\,058 T^2 - 158\,106 T^3 + 116\,828 T^4 + 172\,019 T^5 - \right. \\
& \quad \left. 499\,230 T^6 + 474\,462 T^7 - 171\,424 T^8 + 17\,448 T^9 - 171\,424 T^{10} + 474\,462 T^{11} - \right. \\
& \quad \left. 499\,230 T^{12} + 172\,019 T^{13} + 116\,828 T^{14} - 158\,106 T^{15} + 81\,058 T^{16} - 20\,113 T^{17} + 1924 T^{18} \right) \\
& -\frac{1}{T^{13}} \left(150 - 1600 T + 8641 T^2 - 29\,507 T^3 + 71\,017 T^4 - 127\,861 T^5 + 193\,313 T^6 - \right. \\
& \quad \left. 246\,765 T^7 + 248\,472 T^8 - 185\,466 T^9 + 98\,383 T^{10} - 41\,279 T^{11} + 34\,336 T^{12} - 31\,492 T^{13} + \right. \\
& \quad \left. 34\,336 T^{14} - 41\,279 T^{15} + 98\,383 T^{16} - 185\,466 T^{17} + 248\,472 T^{18} - 246\,765 T^{19} + \right. \\
& \quad \left. 193\,313 T^{20} - 127\,861 T^{21} + 71\,017 T^{22} - 29\,507 T^{23} + 8641 T^{24} - 1600 T^{25} + 150 T^{26} \right) \\
& -\frac{1}{T^9} \left(772 - 7753 T + 46\,210 T^2 - 180\,562 T^3 + 493\,916 T^4 - 903\,157 T^5 + \right. \\
& \quad \left. 1\,054\,902 T^6 - 726\,178 T^7 + 207\,988 T^8 + 39\,776 T^9 + 207\,988 T^{10} - 726\,178 T^{11} + \right. \\
& \quad \left. 1\,054\,902 T^{12} - 903\,157 T^{13} + 493\,916 T^{14} - 180\,562 T^{15} + 46\,210 T^{16} - 7753 T^{17} + 772 T^{18} \right) \\
& -\frac{1}{T^{13}} \left(66 - 663 T + 3389 T^2 - 13\,539 T^3 + 45\,233 T^4 - 122\,616 T^5 + 277\,433 T^6 - \right. \\
& \quad \left. 497\,091 T^7 + 687\,110 T^8 - 717\,955 T^9 + 545\,449 T^{10} - 289\,723 T^{11} + 97\,648 T^{12} - 17\,570 T^{13} + \right. \\
& \quad \left. 97\,648 T^{14} - 289\,723 T^{15} + 545\,449 T^{16} - 717\,955 T^{17} + 687\,110 T^{18} - 497\,091 T^{19} + \right. \\
& \quad \left. 277\,433 T^{20} - 122\,616 T^{21} + 45\,233 T^{22} - 13\,539 T^{23} + 3389 T^{24} - 663 T^{25} + 66 T^{26} \right) \\
& -\frac{1}{T^{13}} \left(1 - T + T^2 \right) \\
& \quad \left(150 - 1450 T + 7405 T^2 - 24\,246 T^3 + 57\,285 T^4 - 101\,924 T^5 + 153\,746 T^6 - 180\,397 T^7 + 153\,269 T^8 - \right. \\
& \quad \left. 89\,240 T^9 + 21\,749 T^{10} + 2551 T^{11} + 14\,508 T^{12} + 2551 T^{13} + 21\,749 T^{14} - 89\,240 T^{15} + 153\,269 T^{16} - \right. \\
& \quad \left. 180\,397 T^{17} + 153\,746 T^{18} - 101\,924 T^{19} + 57\,285 T^{20} - 24\,246 T^{21} + 7405 T^{22} - 1450 T^{23} + 150 T^{24} \right) \\
& -\frac{1}{T^9} \left(1924 - 23\,041 T + 109\,606 T^2 - 266\,018 T^3 + 318\,200 T^4 - 1300 T^5 - \right. \\
& \quad \left. 520\,432 T^6 + 641\,479 T^7 - 277\,372 T^8 + 46\,072 T^9 - 277\,372 T^{10} + 641\,479 T^{11} - \right. \\
& \quad \left. 520\,432 T^{12} - 1300 T^{13} + 318\,200 T^{14} - 266\,018 T^{15} + 109\,606 T^{16} - 23\,041 T^{17} + 1924 T^{18} \right) \\
& -\frac{1}{T^9} \left(44 - 1055 T + 12\,025 T^2 - 83\,585 T^3 + 377\,999 T^4 - 1\,101\,975 T^5 + \right. \\
& \quad \left. 1\,947\,258 T^6 - 1\,860\,359 T^7 + 708\,128 T^8 + 14\,948 T^9 + 708\,128 T^{10} - 1\,860\,359 T^{11} + \right. \\
& \quad \left. 1\,947\,258 T^{12} - 1\,101\,975 T^{13} + 377\,999 T^{14} - 83\,585 T^{15} + 12\,025 T^{16} - 1055 T^{17} + 44 T^{18} \right) \\
& -\frac{1}{T^9} \left(772 - 8997 T + 58\,436 T^2 - 247\,904 T^3 + 729\,062 T^4 - 1\,442\,785 T^5 + \right. \\
& \quad \left. 1\,837\,964 T^6 - 1\,381\,061 T^7 + 437\,148 T^8 + 46\,778 T^9 + 437\,148 T^{10} - 1\,381\,061 T^{11} + \right. \\
& \quad \left. 1\,837\,964 T^{12} - 1\,442\,785 T^{13} + 729\,062 T^{14} - 247\,904 T^{15} + 58\,436 T^{16} - 8997 T^{17} + 772 T^{18} \right) \\
& -\frac{1}{T^9} \left(1924 - 25\,969 T + 143\,488 T^2 - 422\,704 T^3 + 697\,708 T^4 - 515\,540 T^5 - \right. \\
& \quad \left. 184\,136 T^6 + 620\,522 T^7 - 347\,120 T^8 + 75\,574 T^9 - 347\,120 T^{10} + 620\,522 T^{11} - 184\,136 T^{12} - \right. \\
& \quad \left. 515\,540 T^{13} + 697\,708 T^{14} - 422\,704 T^{15} + 143\,488 T^{16} - 25\,969 T^{17} + 1924 T^{18} \right) \\
& -\frac{1}{T^9} \left(25\,740 - 232\,224 T + 1\,070\,486 T^2 - 3\,230\,996 T^3 + 6\,809\,348 T^4 - 10\,166\,915 T^5 + 10\,585\,546 T^6 - \right. \\
& \quad \left. 7\,095\,673 T^7 + 2\,209\,500 T^8 + 61\,444 T^9 + 2\,209\,500 T^{10} - 7\,095\,673 T^{11} + 10\,585\,546 T^{12} - \right. \\
& \quad \left. 10\,166\,915 T^{13} + 6\,809\,348 T^{14} - 3\,230\,996 T^{15} + 1\,070\,486 T^{16} - 232\,224 T^{17} + 25\,740 T^{18} \right) \\
& -\frac{1}{T^{13}} \left(138 - 1972 T + 13\,690 T^2 - 58\,511 T^3 + 167\,265 T^4 - 326\,571 T^5 + 416\,837 T^6 - \right. \\
& \quad \left. 233\,089 T^7 - 330\,749 T^8 + 1\,012\,873 T^9 - 1\,270\,987 T^{10} + 874\,235 T^{11} - 214\,604 T^{12} - 85\,310 T^{13} - \right. \\
& \quad \left. 214\,604 T^{14} + 874\,235 T^{15} - 1\,270\,987 T^{16} + 1\,012\,873 T^{17} - 330\,749 T^{18} - 233\,089 T^{19} + \right. \\
& \quad \left. 416\,837 T^{20} - 326\,571 T^{21} + 167\,265 T^{22} - 58\,511 T^{23} + 13\,690 T^{24} - 1972 T^{25} + 138 T^{26} \right)
\end{aligned}$$

$$\begin{aligned}
& -\frac{1}{T^{13}} \left(66 - 905 T + 6154 T^2 - 29325 T^3 + 109735 T^4 - 331701 T^5 + 821637 T^6 - 1641859 T^7 + \right. \\
& \quad 2587135 T^8 - 3129293 T^9 + 2782351 T^{10} - 1663099 T^{11} + 495280 T^{12} - 436 T^{13} + \\
& \quad 495280 T^{14} - 1663099 T^{15} + 2782351 T^{16} - 3129293 T^{17} + 2587135 T^{18} - 1641859 T^{19} + \\
& \quad \left. 821637 T^{20} - 331701 T^{21} + 109735 T^{22} - 29325 T^{23} + 6154 T^{24} - 905 T^{25} + 66 T^{26} \right) \\
& -\frac{1}{T^{13}} \left(1 - T + T^2 \right) \left(66 - 1081 T + 8212 T^2 - 40438 T^3 + 149094 T^4 - 432711 T^5 + \right. \\
& \quad 997160 T^6 - 1785744 T^7 + 2366156 T^8 - 2161094 T^9 + 1172396 T^{10} - 150426 T^{11} - \\
& \quad 231256 T^{12} - 150426 T^{13} + 1172396 T^{14} - 2161094 T^{15} + 2366156 T^{16} - 1785744 T^{17} + \\
& \quad \left. 997160 T^{18} - 432711 T^{19} + 149094 T^{20} - 40438 T^{21} + 8212 T^{22} - 1081 T^{23} + 66 T^{24} \right) \\
& -\frac{1}{T^{13}} \left(786 - 2930 T + 3383 T^2 + 1419 T^3 - 3622 T^4 - 3700 T^5 + 40383 T^6 - 40819 T^7 - 29416 T^8 + 52113 T^9 - \right. \\
& \quad 6500 T^{10} - 15826 T^{11} + 23776 T^{12} - 24914 T^{13} + 23776 T^{14} - 15826 T^{15} - 6500 T^{16} + 52113 T^{17} - \\
& \quad \left. 29416 T^{18} - 40819 T^{19} + 40383 T^{20} - 3700 T^{21} - 3622 T^{22} + 1419 T^{23} + 3383 T^{24} - 2930 T^{25} + 786 T^{26} \right) \\
& -\frac{1}{T^9} \left(44 - 285 T + 2084 T^2 - 8008 T^3 + 23582 T^4 - 37474 T^5 + 13126 T^6 + 25441 T^7 - 15540 T^8 + 5740 T^9 - \right. \\
& \quad \left. 15540 T^{10} + 25441 T^{11} + 13126 T^{12} - 37474 T^{13} + 23582 T^{14} - 8008 T^{15} + 2084 T^{16} - 285 T^{17} + 44 T^{18} \right) \\
& -\frac{1}{T^9} \\
& \left(92 - 1450 T + 8258 T^2 - 20630 T^3 + 13404 T^4 + 68079 T^5 - 193706 T^6 + 206355 T^7 - 87572 T^8 + 26384 T^9 - \right. \\
& \quad \left. 87572 T^{10} + 206355 T^{11} - 193706 T^{12} + 68079 T^{13} + 13404 T^{14} - 20630 T^{15} + 8258 T^{16} - 1450 T^{17} + 92 T^{18} \right) \\
& -\frac{1}{T^{17}} \left(1720 - 6519 T + 12949 T^2 - 19728 T^3 + 31619 T^4 - 54841 T^5 + 77764 T^6 - \right. \\
& \quad 96297 T^7 + 88716 T^8 - 38073 T^9 + 27299 T^{10} - 30455 T^{11} + 6810 T^{12} - 18028 T^{13} + \\
& \quad 64181 T^{14} - 70065 T^{15} + 74366 T^{16} - 94596 T^{17} + 74366 T^{18} - 70065 T^{19} + 64181 T^{20} - \\
& \quad 18028 T^{21} + 6810 T^{22} - 30455 T^{23} + 27299 T^{24} - 38073 T^{25} + 88716 T^{26} - 96297 T^{27} + \\
& \quad \left. 77764 T^{28} - 54841 T^{29} + 31619 T^{30} - 19728 T^{31} + 12949 T^{32} - 6519 T^{33} + 1720 T^{34} \right) \\
& -\frac{4(7018-22941T+5777T^2+42741T^3-37549T^4+12582T^5-37549T^6+42741T^7+5777T^8-22941T^9+7018T^{10})}{T^5} \\
& -\frac{1}{T^{13}} \left(14550 - 79213 T + 213350 T^2 - 398052 T^3 + 622616 T^4 - 855661 T^5 + 1153927 T^6 - \right. \\
& \quad 1340853 T^7 + 1213075 T^8 - 970168 T^9 + 707430 T^{10} - 389443 T^{11} + 179674 T^{12} - 127284 T^{13} + \\
& \quad 179674 T^{14} - 389443 T^{15} + 707430 T^{16} - 970168 T^{17} + 1213075 T^{18} - 1340853 T^{19} + \\
& \quad \left. 1153927 T^{20} - 855661 T^{21} + 622616 T^{22} - 398052 T^{23} + 213350 T^{24} - 79213 T^{25} + 14550 T^{26} \right) \\
& -\frac{1}{T^9} \left(30244 - 175202 T + 546341 T^2 - 1182525 T^3 + 1771117 T^4 - 1853700 T^5 + \right. \\
& \quad 1457940 T^6 - 839869 T^7 + 273892 T^8 - 46884 T^9 + 273892 T^{10} - 839869 T^{11} + 1457940 T^{12} - \\
& \quad \left. 1853700 T^{13} + 1771117 T^{14} - 1182525 T^{15} + 546341 T^{16} - 175202 T^{17} + 30244 T^{18} \right) \\
& -\frac{143042-786853T+1986120T^2-2453846T^3+1213314T^4-189750T^5+1213314T^6-2453846T^7+1986120T^8-786853T^9+143042T^{10}}{T^5} \\
& -\frac{1}{T^{13}} \left(13926 - 99421 T + 357846 T^2 - 842496 T^3 + 1439002 T^4 - 1922378 T^5 + 2060006 T^6 - \right. \\
& \quad 1686340 T^7 + 980750 T^8 - 354097 T^9 - 2948 T^{10} + 152855 T^{11} - 149368 T^{12} + 115042 T^{13} - \\
& \quad 149368 T^{14} + 152855 T^{15} - 2948 T^{16} - 354097 T^{17} + 980750 T^{18} - 1686340 T^{19} + 2060006 T^{20} - \\
& \quad \left. 1922378 T^{21} + 1439002 T^{22} - 842496 T^{23} + 357846 T^{24} - 99421 T^{25} + 13926 T^{26} \right) \\
& -\frac{1}{T^9} \left(30244 - 240286 T + 990389 T^2 - 2709811 T^3 + 5202601 T^4 - 7116345 T^5 + 6880562 T^6 - \right. \\
& \quad 4363815 T^7 + 1304770 T^8 + 53834 T^9 + 1304770 T^{10} - 4363815 T^{11} + 6880562 T^{12} - \\
& \quad \left. 7116345 T^{13} + 5202601 T^{14} - 2709811 T^{15} + 990389 T^{16} - 240286 T^{17} + 30244 T^{18} \right) \\
& -\frac{1}{T^9} \left(1124 - 14949 T + 77508 T^2 - 195460 T^3 + 205576 T^4 + 167638 T^5 - \right. \\
& \quad 782680 T^6 + 938316 T^7 - 458184 T^8 + 133894 T^9 - 458184 T^{10} + 938316 T^{11} - \\
& \quad \left. 782680 T^{12} + 167638 T^{13} + 205576 T^{14} - 195460 T^{15} + 77508 T^{16} - 14949 T^{17} + 1124 T^{18} \right)
\end{aligned}$$

$$\begin{aligned}
 & - \frac{1}{T^{13}} \left(13\,926 - 99\,421 T + 376\,058 T^2 - 973\,088 T^3 + 1\,903\,688 T^4 - 2\,994\,990 T^5 + 3\,842\,358 T^6 - 3\,972\,538 T^7 + \right. \\
 & \quad 3\,323\,852 T^8 - 2\,234\,489 T^9 + 1\,126\,304 T^{10} - 296\,232 T^{11} - 130\,866 T^{12} + 240\,100 T^{13} - \\
 & \quad 130\,866 T^{14} - 296\,232 T^{15} + 1\,126\,304 T^{16} - 2\,234\,489 T^{17} + 3\,323\,852 T^{18} - 3\,972\,538 T^{19} + \\
 & \quad \left. 3\,842\,358 T^{20} - 2\,994\,990 T^{21} + 1\,903\,688 T^{22} - 973\,088 T^{23} + 376\,058 T^{24} - 99\,421 T^{25} + 13\,926 T^{26} \right) \\
 & - \frac{1}{T^9} \left(48\,512 - 331\,728 T + 1\,095\,536 T^2 - 2\,312\,368 T^3 + 3\,636\,636 T^4 - 4\,365\,995 T^5 + 3\,813\,258 T^6 - \right. \\
 & \quad 2\,214\,181 T^7 + 622\,758 T^8 + 22\,484 T^9 + 622\,758 T^{10} - 2\,214\,181 T^{11} + 3\,813\,258 T^{12} - \\
 & \quad \left. 4\,365\,995 T^{13} + 3\,636\,636 T^{14} - 2\,312\,368 T^{15} + 1\,095\,536 T^{16} - 331\,728 T^{17} + 48\,512 T^{18} \right) \\
 & - \frac{1}{T^{13}} \left(390 - 7137 T + 56\,637 T^2 - 260\,501 T^3 + 787\,671 T^4 - 1\,693\,063 T^5 + 2\,768\,599 T^6 - 3\,703\,553 T^7 + \right. \\
 & \quad 4\,184\,956 T^8 - 3\,790\,922 T^9 + 2\,547\,677 T^{10} - 1\,171\,033 T^{11} + 254\,546 T^{12} + 64\,518 T^{13} + \\
 \text{Out[]:=} & \quad 254\,546 T^{14} - 1\,171\,033 T^{15} + 2\,547\,677 T^{16} - 3\,790\,922 T^{17} + 4\,184\,956 T^{18} - 3\,703\,553 T^{19} + \\
 & \quad \left. 2\,768\,599 T^{20} - 1\,693\,063 T^{21} + 787\,671 T^{22} - 260\,501 T^{23} + 56\,637 T^{24} - 7137 T^{25} + 390 T^{26} \right) \\
 & - \frac{1}{T^9} \left(1924 - 30\,653 T + 200\,196 T^2 - 703\,584 T^3 + 1\,446\,782 T^4 - 1\,678\,981 T^5 + \right. \\
 & \quad 850\,032 T^6 + 148\,915 T^7 - 271\,376 T^8 + 85\,042 T^9 - 271\,376 T^{10} + 148\,915 T^{11} + 850\,032 T^{12} - \\
 & \quad \left. 1\,678\,981 T^{13} + 1\,446\,782 T^{14} - 703\,584 T^{15} + 200\,196 T^{16} - 30\,653 T^{17} + 1924 T^{18} \right) \\
 & - \frac{1}{T^9} \left(97\,024 - 748\,352 T + 2\,795\,744 T^2 - 6\,645\,694 T^3 + 11\,448\,746 T^4 - 14\,732\,638 T^5 + 13\,761\,972 T^6 - \right. \\
 & \quad 8\,560\,127 T^7 + 2\,607\,136 T^8 - 33\,442 T^9 + 2\,607\,136 T^{10} - 8\,560\,127 T^{11} + 13\,761\,972 T^{12} - \\
 & \quad \left. 14\,732\,638 T^{13} + 11\,448\,746 T^{14} - 6\,645\,694 T^{15} + 2\,795\,744 T^{16} - 748\,352 T^{17} + 97\,024 T^{18} \right) \\
 & - \frac{1}{T^9} \left(772 - 11\,913 T + 93\,034 T^2 - 457\,590 T^3 + 1\,513\,556 T^4 - 3\,359\,952 T^5 + \right. \\
 & \quad 4\,824\,040 T^6 - 4\,092\,597 T^7 + 1\,532\,028 T^8 - 71\,088 T^9 + 1\,532\,028 T^{10} - 4\,092\,597 T^{11} + \\
 & \quad \left. 4\,824\,040 T^{12} - 3\,359\,952 T^{13} + 1\,513\,556 T^{14} - 457\,590 T^{15} + 93\,034 T^{16} - 11\,913 T^{17} + 772 T^{18} \right) \\
 & - \frac{1}{T^9} \left(2084 - 36\,421 T + 273\,610 T^2 - 1\,174\,142 T^3 + 3\,247\,756 T^4 - 6\,097\,723 T^5 + 7\,697\,206 T^6 - \right. \\
 & \quad 5\,971\,346 T^7 + 1\,997\,644 T^8 + 135\,212 T^9 + 1\,997\,644 T^{10} - 5\,971\,346 T^{11} + 7\,697\,206 T^{12} - \\
 & \quad \left. 6\,097\,723 T^{13} + 3\,247\,756 T^{14} - 1\,174\,142 T^{15} + 273\,610 T^{16} - 36\,421 T^{17} + 2084 T^{18} \right) \\
 & - \frac{1}{T^{13}} \\
 & \left(14\,550 - 128\,797 T + 586\,012 T^2 - 1\,820\,904 T^3 + 4\,342\,938 T^4 - 8\,398\,092 T^5 + 13\,658\,066 T^6 - 18\,829\,334 T^7 + \right. \\
 & \quad 21\,847\,110 T^8 - 20\,998\,107 T^9 + 16\,044\,376 T^{10} - 8\,738\,333 T^{11} + 2\,298\,396 T^{12} + 257\,918 T^{13} + \\
 & \quad 2\,298\,396 T^{14} - 8\,738\,333 T^{15} + 16\,044\,376 T^{16} - 20\,998\,107 T^{17} + 21\,847\,110 T^{18} - 18\,829\,334 T^{19} + \\
 & \quad \left. 13\,658\,066 T^{20} - 8\,398\,092 T^{21} + 4\,342\,938 T^{22} - 1\,820\,904 T^{23} + 586\,012 T^{24} - 128\,797 T^{25} + 14\,550 T^{26} \right) \\
 & - \frac{1}{T^{13}} \left(138 - 2478 T + 20\,075 T^2 - 95\,205 T^3 + 287\,005 T^4 - 555\,316 T^5 + 636\,203 T^6 - 202\,699 T^7 - \right. \\
 & \quad 745\,048 T^8 + 1\,661\,292 T^9 - 1\,775\,755 T^{10} + 1\,019\,411 T^{11} - 136\,290 T^{12} - 210\,754 T^{13} - \\
 & \quad 136\,290 T^{14} + 1\,019\,411 T^{15} - 1\,775\,755 T^{16} + 1\,661\,292 T^{17} - 745\,048 T^{18} - 202\,699 T^{19} + \\
 & \quad \left. 636\,203 T^{20} - 555\,316 T^{21} + 287\,005 T^{22} - 95\,205 T^{23} + 20\,075 T^{24} - 2478 T^{25} + 138 T^{26} \right) \\
 & - \frac{1}{T^9} \left(91\,904 - 773\,888 T + 3\,296\,960 T^2 - 9\,205\,508 T^3 + 18\,116\,522 T^4 - 25\,640\,143 T^5 + 25\,770\,076 T^6 - \right. \\
 & \quad 16\,961\,364 T^7 + 5\,239\,326 T^8 + 142\,314 T^9 + 5\,239\,326 T^{10} - 16\,961\,364 T^{11} + 25\,770\,076 T^{12} - \\
 & \quad \left. 25\,640\,143 T^{13} + 18\,116\,522 T^{14} - 9\,205\,508 T^{15} + 3\,296\,960 T^{16} - 773\,888 T^{17} + 91\,904 T^{18} \right) \\
 & - \frac{1}{T^9} \left(740 - 12\,589 T + 105\,818 T^2 - 557\,334 T^3 + 1\,957\,884 T^4 - 4\,570\,575 T^5 + \right. \\
 & \quad 6\,803\,506 T^6 - 5\,866\,266 T^7 + 2\,123\,368 T^8 + 42\,684 T^9 + 2\,123\,368 T^{10} - 5\,866\,266 T^{11} + \\
 & \quad \left. 6\,803\,506 T^{12} - 4\,570\,575 T^{13} + 1\,957\,884 T^{14} - 557\,334 T^{15} + 105\,818 T^{16} - 12\,589 T^{17} + 740 T^{18} \right) \\
 & - \frac{1}{T^{13}} \left(366 - 6693 T + 54\,989 T^2 - 276\,251 T^3 + 977\,507 T^4 - 2\,639\,099 T^5 + 5\,656\,225 T^6 - 9\,722\,857 T^7 + \right. \\
 & \quad 13\,350\,884 T^8 - 14\,476\,545 T^9 + 12\,001\,643 T^{10} - 6\,918\,985 T^{11} + 1\,939\,666 T^{12} + 129\,732 T^{13} + \\
 & \quad 1\,939\,666 T^{14} - 6\,918\,985 T^{15} + 12\,001\,643 T^{16} - 14\,476\,545 T^{17} + 13\,350\,884 T^{18} - 9\,722\,857 T^{19} + \\
 & \quad \left. 5\,656\,225 T^{20} - 2\,639\,099 T^{21} + 977\,507 T^{22} - 276\,251 T^{23} + 54\,989 T^{24} - 6693 T^{25} + 366 T^{26} \right)
 \end{aligned}$$

$$\begin{aligned}
& -\frac{1}{T^9} \left(2084 - 39\,597 T + 320\,986 T^2 - 1\,470\,904 T^3 + 4\,281\,540 T^4 - 8\,338\,228 T^5 + 10\,795\,032 T^6 - \right. \\
& \quad \left. 8\,524\,877 T^7 + 2\,924\,924 T^8 + 110\,756 T^9 + 2\,924\,924 T^{10} - 8\,524\,877 T^{11} + 10\,795\,032 T^{12} - \right. \\
& \quad \left. 8\,338\,228 T^{13} + 4\,281\,540 T^{14} - 1\,470\,904 T^{15} + 320\,986 T^{16} - 39\,597 T^{17} + 2084 T^{18} \right) \\
& -\frac{1}{T^{13}} \left(150 - 2700 T + 22\,291 T^2 - 111\,327 T^3 + 376\,324 T^4 - 915\,236 T^5 + 1\,676\,185 T^6 - 2\,394\,815 T^7 + \right. \\
& \quad \left. 2\,678\,620 T^8 - 2\,255\,714 T^9 + 1\,354\,314 T^{10} - 558\,850 T^{11} + 186\,370 T^{12} - 99\,184 T^{13} + \right. \\
& \quad \left. 186\,370 T^{14} - 558\,850 T^{15} + 1\,354\,314 T^{16} - 2\,255\,714 T^{17} + 2\,678\,620 T^{18} - 2\,394\,815 T^{19} + \right. \\
& \quad \left. 1\,676\,185 T^{20} - 915\,236 T^{21} + 376\,324 T^{22} - 111\,327 T^{23} + 22\,291 T^{24} - 2700 T^{25} + 150 T^{26} \right) \\
& -\frac{1}{T^9} \left(91\,904 - 854\,304 T + 3\,966\,144 T^2 - 11\,918\,062 T^3 + 25\,050\,910 T^4 - 37\,618\,117 T^5 + 39\,735\,922 T^6 - \right. \\
& \quad \left. 27\,195\,207 T^7 + 8\,755\,134 T^8 - 18\,072 T^9 + 8\,755\,134 T^{10} - 27\,195\,207 T^{11} + 39\,735\,922 T^{12} - \right. \\
& \quad \left. 37\,618\,117 T^{13} + 25\,050\,910 T^{14} - 11\,918\,062 T^{15} + 3\,966\,144 T^{16} - 854\,304 T^{17} + 91\,904 T^{18} \right) \\
& -\frac{1}{T^{13}} \left(66 - 1147 T + 9359 T^2 - 49\,707 T^3 + 197\,404 T^4 - 620\,043 T^5 + 1\,572\,481 T^6 - 3\,214\,455 T^7 + \right. \\
& \quad \left. 5\,198\,960 T^8 - 6\,462\,502 T^9 + 5\,903\,722 T^{10} - 3\,637\,752 T^{11} + 1\,164\,662 T^{12} - 110\,420 T^{13} + \right. \\
& \quad \left. 1\,164\,662 T^{14} - 3\,637\,752 T^{15} + 5\,903\,722 T^{16} - 6\,462\,502 T^{17} + 5\,198\,960 T^{18} - 3\,214\,455 T^{19} + \right. \\
& \quad \left. 1\,572\,481 T^{20} - 620\,043 T^{21} + 197\,404 T^{22} - 49\,707 T^{23} + 9359 T^{24} - 1147 T^{25} + 66 T^{26} \right) \\
& -\frac{1}{T^9} \left(10\,620 - 146\,319 T + 860\,304 T^2 - 2\,856\,598 T^3 + 5\,924\,190 T^4 - 7\,861\,443 T^5 + 6\,530\,144 T^6 - \right. \\
& \quad \left. 3\,167\,365 T^7 + 728\,482 T^8 - 32\,234 T^9 + 728\,482 T^{10} - 3\,167\,365 T^{11} + 6\,530\,144 T^{12} - \right. \\
& \quad \left. 7\,861\,443 T^{13} + 5\,924\,190 T^{14} - 2\,856\,598 T^{15} + 860\,304 T^{16} - 146\,319 T^{17} + 10\,620 T^{18} \right) \\
& -\frac{1}{T^{13}} \left(150 - 2700 T + 23\,471 T^2 - 128\,293 T^3 + 489\,649 T^4 - 1\,380\,312 T^5 + 2\,989\,455 T^6 - 5\,102\,435 T^7 + \right. \\
& \quad \left. 6\,924\,210 T^8 - 7\,385\,363 T^9 + 5\,973\,013 T^{10} - 3\,356\,473 T^{11} + 973\,872 T^{12} - 24\,692 T^{13} + \right. \\
& \quad \left. 973\,872 T^{14} - 3\,356\,473 T^{15} + 5\,973\,013 T^{16} - 7\,385\,363 T^{17} + 6\,924\,210 T^{18} - 5\,102\,435 T^{19} + \right. \\
& \quad \left. 2\,989\,455 T^{20} - 1\,380\,312 T^{21} + 489\,649 T^{22} - 128\,293 T^{23} + 23\,471 T^{24} - 2700 T^{25} + 150 T^{26} \right) \\
& -\frac{1}{T^{13}} \left(66 - 1147 T + 9573 T^2 - 52\,827 T^3 + 218\,779 T^4 - 716\,567 T^5 + 1\,899\,075 T^6 - 4\,069\,437 T^7 + \right. \\
& \quad \left. 6\,924\,304 T^8 - 9\,074\,616 T^9 + 8\,723\,721 T^{10} - 5\,586\,951 T^{11} + 1\,765\,446 T^{12} - 67\,042 T^{13} + \right. \\
& \quad \left. 1\,765\,446 T^{14} - 5\,586\,951 T^{15} + 8\,723\,721 T^{16} - 9\,074\,616 T^{17} + 6\,924\,304 T^{18} - 4\,069\,437 T^{19} + \right. \\
& \quad \left. 1\,899\,075 T^{20} - 716\,567 T^{21} + 218\,779 T^{22} - 52\,827 T^{23} + 9573 T^{24} - 1147 T^{25} + 66 T^{26} \right) \\
& -\frac{1}{T^{13}} \left(138 - 2478 T + 21\,579 T^2 - 118\,005 T^3 + 447\,182 T^4 - 1\,230\,540 T^5 + 2\,512\,715 T^6 - \right. \\
& \quad \left. 3\,791\,303 T^7 + 4\,059\,584 T^8 - 2\,738\,159 T^9 + 692\,744 T^{10} + 437\,538 T^{11} - 242\,240 T^{12} - 85\,586 T^{13} - \right. \\
& \quad \left. 242\,240 T^{14} + 437\,538 T^{15} + 692\,744 T^{16} - 2\,738\,159 T^{17} + 4\,059\,584 T^{18} - 3\,791\,303 T^{19} + \right. \\
& \quad \left. 2\,512\,715 T^{20} - 1\,230\,540 T^{21} + 447\,182 T^{22} - 118\,005 T^{23} + 21\,579 T^{24} - 2478 T^{25} + 138 T^{26} \right) \\
& -\frac{1}{T^{13}} \left(138 - 2478 T + 21\,083 T^2 - 110\,325 T^3 + 391\,654 T^4 - 983\,438 T^5 + 1\,760\,927 T^6 - 2\,148\,573 T^7 + \right. \\
& \quad \left. 1\,444\,820 T^8 + 260\,535 T^9 - 1\,703\,464 T^{10} + 1\,681\,982 T^{11} - 599\,312 T^{12} - 15\,422 T^{13} - \right. \\
& \quad \left. 599\,312 T^{14} + 1\,681\,982 T^{15} - 1\,703\,464 T^{16} + 260\,535 T^{17} + 1\,444\,820 T^{18} - 2\,148\,573 T^{19} + \right. \\
& \quad \left. 1\,760\,927 T^{20} - 983\,438 T^{21} + 391\,654 T^{22} - 110\,325 T^{23} + 21\,083 T^{24} - 2478 T^{25} + 138 T^{26} \right) \\
& -\frac{1}{T^{13}} \left(66 - 1147 T + 9787 T^2 - 55\,959 T^3 + 240\,934 T^4 - 820\,927 T^5 + 2\,263\,581 T^6 - 5\,041\,775 T^7 + \right. \\
& \quad \left. 8\,911\,466 T^8 - 12\,124\,377 T^9 + 12\,075\,710 T^{10} - 7\,945\,190 T^{11} + 2\,486\,350 T^{12} + 14\,754 T^{13} + \right. \\
& \quad \left. 2\,486\,350 T^{14} - 7\,945\,190 T^{15} + 12\,075\,710 T^{16} - 12\,124\,377 T^{17} + 8\,911\,466 T^{18} - 5\,041\,775 T^{19} + \right. \\
& \quad \left. 2\,263\,581 T^{20} - 820\,927 T^{21} + 240\,934 T^{22} - 55\,959 T^{23} + 9787 T^{24} - 1147 T^{25} + 66 T^{26} \right) \\
& -\frac{1}{T^{13}} \left(138 - 2478 T + 22\,163 T^2 - 126\,515 T^3 + 507\,605 T^4 - 1\,498\,010 T^5 + 3\,322\,935 T^6 - \right. \\
& \quad \left. 5\,541\,977 T^7 + 6\,796\,088 T^8 - 5\,797\,222 T^9 + 3\,033\,577 T^{10} - 673\,361 T^{11} - 15\,386 T^{12} - 43\,434 T^{13} - \right. \\
& \quad \left. 15\,386 T^{14} - 673\,361 T^{15} + 3\,033\,577 T^{16} - 5\,797\,222 T^{17} + 6\,796\,088 T^{18} - 5\,541\,977 T^{19} + \right. \\
& \quad \left. 3\,322\,935 T^{20} - 1\,498\,010 T^{21} + 507\,605 T^{22} - 126\,515 T^{23} + 22\,163 T^{24} - 2478 T^{25} + 138 T^{26} \right) \\
& -\frac{1}{T^{13}} \left(150 - 3250 T + 32\,796 T^2 - 203\,281 T^3 + 864\,103 T^4 - 2\,673\,314 T^5 + 6\,260\,727 T^6 - 11\,399\,707 T^7 + \right. \\
& \quad \left. 16\,320\,505 T^8 - 18\,211\,380 T^9 + 15\,317\,813 T^{10} - 8\,895\,347 T^{11} + 2\,620\,752 T^{12} - 49\,466 T^{13} + \right. \\
& \quad \left. 2\,620\,752 T^{14} - 8\,895\,347 T^{15} + 15\,317\,813 T^{16} - 18\,211\,380 T^{17} + 16\,320\,505 T^{18} - 11\,399\,707 T^{19} + \right. \\
& \quad \left. 6\,260\,727 T^{20} - 2\,673\,314 T^{21} + 864\,103 T^{22} - 203\,281 T^{23} + 32\,796 T^{24} - 3250 T^{25} + 150 T^{26} \right)
\end{aligned}$$

$$\begin{aligned}
 & - \frac{1}{T^{13}} \left(66 - 1389 T + 13\,658 T^2 - 85\,433 T^3 + 387\,283 T^4 - 1\,355\,320 T^5 + 3\,770\,539 T^6 - 8\,391\,885 T^7 + \right. \\
 & \quad 14\,754\,069 T^8 - 19\,926\,600 T^9 + 19\,716\,005 T^{10} - 12\,957\,617 T^{11} + 4\,146\,730 T^{12} - 128\,412 T^{13} + \\
 & \quad 4\,146\,730 T^{14} - 12\,957\,617 T^{15} + 19\,716\,005 T^{16} - 19\,926\,600 T^{17} + 14\,754\,069 T^{18} - 8\,391\,885 T^{19} + \\
 & \quad \left. 3\,770\,539 T^{20} - 1\,355\,320 T^{21} + 387\,283 T^{22} - 85\,433 T^{23} + 13\,658 T^{24} - 1\,389 T^{25} + 66 T^{26} \right) \\
 & - \frac{1}{T^{13}} \left(66 - 1389 T + 14\,086 T^2 - 92\,841 T^3 + 447\,801 T^4 - 1\,673\,014 T^5 + 4\,973\,275 T^6 - 11\,816\,615 T^7 + \right. \\
 & \quad 22\,148\,783 T^8 - 31\,818\,545 T^9 + 33\,304\,213 T^{10} - 22\,846\,169 T^{11} + 7\,326\,062 T^{12} + 80\,490 T^{13} + \\
 & \quad 7\,326\,062 T^{14} - 22\,846\,169 T^{15} + 33\,304\,213 T^{16} - 31\,818\,545 T^{17} + 22\,148\,783 T^{18} - 11\,816\,615 T^{19} + \\
 & \quad \left. 4\,973\,275 T^{20} - 1\,673\,014 T^{21} + 447\,801 T^{22} - 92\,841 T^{23} + 14\,086 T^{24} - 1\,389 T^{25} + 66 T^{26} \right) \\
 & - \frac{254\,602 - 1\,156\,980 T + 1\,887\,904 T^2 - 1\,284\,825 T^3 + 374\,244 T^4 - 140\,174 T^5 + 374\,244 T^6 - 1\,284\,825 T^7 + 1\,887\,904 T^8 - 1\,156\,980 T^9 + 254\,602 T^{10}}{T^5} \\
 & - \frac{1}{T^{13}} \left(390 - 7137 T + 57\,671 T^2 - 276\,073 T^3 + 889\,394 T^4 - 2\,081\,263 T^5 + 3\,755\,033 T^6 - 5\,503\,645 T^7 + \right. \\
 & \quad 6\,679\,638 T^8 - 6\,509\,081 T^9 + 4\,813\,706 T^{10} - 2\,450\,176 T^{11} + 559\,118 T^{12} + 157\,650 T^{13} + \\
 & \quad 559\,118 T^{14} - 2\,450\,176 T^{15} + 4\,813\,706 T^{16} - 6\,509\,081 T^{17} + 6\,679\,638 T^{18} - 5\,503\,645 T^{19} + \\
 & \quad \left. 3\,755\,033 T^{20} - 2\,081\,263 T^{21} + 889\,394 T^{22} - 276\,073 T^{23} + 57\,671 T^{24} - 7137 T^{25} + 390 T^{26} \right) \\
 & - \frac{1}{T^9} \left(740 - 13\,809 T + 124\,016 T^2 - 687\,846 T^3 + 2\,522\,974 T^4 - 6\,126\,423 T^5 + \right. \\
 & \quad 9\,455\,952 T^6 - 8\,420\,271 T^7 + 3\,169\,924 T^8 - 38\,730 T^9 + 3\,169\,924 T^{10} - 8\,420\,271 T^{11} + \\
 & \quad \left. 9\,455\,952 T^{12} - 6\,126\,423 T^{13} + 2\,522\,974 T^{14} - 687\,846 T^{15} + 124\,016 T^{16} - 13\,809 T^{17} + 740 T^{18} \right) \\
 & - \frac{1}{T^9} \left(221\,188 - 2\,091\,369 T + 9\,740\,140 T^2 - 29\,121\,154 T^3 + 60\,827\,294 T^4 - 91\,006\,174 T^5 + 96\,108\,322 T^6 - \right. \\
 & \quad 65\,935\,315 T^7 + 21\,289\,360 T^8 - 54\,376 T^9 + 21\,289\,360 T^{10} - 65\,935\,315 T^{11} + 96\,108\,322 T^{12} - \\
 & \quad \left. 91\,006\,174 T^{13} + 60\,827\,294 T^{14} - 29\,121\,154 T^{15} + 9\,740\,140 T^{16} - 2\,091\,369 T^{17} + 221\,188 T^{18} \right) \\
 & - \frac{1}{T^9} \left(11\,484 - 183\,027 T + 1\,277\,900 T^2 - 5\,190\,894 T^3 + 13\,748\,970 T^4 - 24\,845\,200 T^5 + 30\,363\,490 T^6 - \right. \\
 & \quad 23\,110\,831 T^7 + 7\,980\,852 T^8 - 93\,064 T^9 + 7\,980\,852 T^{10} - 23\,110\,831 T^{11} + 30\,363\,490 T^{12} - \\
 & \quad \left. 24\,845\,200 T^{13} + 13\,748\,970 T^{14} - 5\,190\,894 T^{15} + 1\,277\,900 T^{16} - 183\,027 T^{17} + 11\,484 T^{18} \right) \\
 & - \frac{1}{T^{13}} \left(1 - 3 T + T^2 \right) \\
 & \left(138 - 3076 T + 31\,087 T^2 - 187\,178 T^3 + 744\,679 T^4 - 2\,060\,164 T^5 + 4\,076\,324 T^6 - 5\,817\,781 T^7 + \right. \\
 & \quad 5\,885\,413 T^8 - 4\,035\,562 T^9 + 1\,688\,939 T^{10} - 241\,149 T^{11} - 175\,380 T^{12} - 241\,149 T^{13} + 1\,688\,939 T^{14} - \\
 & \quad 4\,035\,562 T^{15} + 5\,885\,413 T^{16} - 5\,817\,781 T^{17} + 4\,076\,324 T^{18} - 2\,060\,164 T^{19} + \\
 & \quad \left. 744\,679 T^{20} - 187\,178 T^{21} + 31\,087 T^{22} - 3076 T^{23} + 138 T^{24} \right) \\
 & - \frac{1}{T^9} \left(3924 - 53\,622 T + 376\,506 T^2 - 1\,693\,306 T^3 + 5\,186\,880 T^4 - 10\,809\,021 T^5 + 14\,759\,506 T^6 - \right. \\
 & \quad 12\,048\,049 T^7 + 4\,288\,748 T^8 - 11\,088 T^9 + 4\,288\,748 T^{10} - 12\,048\,049 T^{11} + 14\,759\,506 T^{12} - \\
 & \quad \left. 10\,809\,021 T^{13} + 5\,186\,880 T^{14} - 1\,693\,306 T^{15} + 376\,506 T^{16} - 53\,622 T^{17} + 3924 T^{18} \right) \\
 & - \frac{1}{T^9} \left(100 - 690 T + 1172 T^2 + 870 T^3 + 1942 T^4 - 4488 T^5 + 2398 T^6 + 2537 T^7 - 11\,132 T^8 + 26\,494 T^9 - \right. \\
 & \quad \left. 11\,132 T^{10} + 2537 T^{11} + 2398 T^{12} - 4488 T^{13} + 1942 T^{14} + 870 T^{15} + 1172 T^{16} - 690 T^{17} + 100 T^{18} \right) \\
 & - \frac{1}{T^{13}} \\
 & \left(390 - 4277 T + 19\,479 T^2 - 47\,991 T^3 + 67\,946 T^4 - 49\,150 T^5 + 24\,551 T^6 - 68\,739 T^7 + 85\,748 T^8 + 56\,192 T^9 - \right. \\
 & \quad 172\,740 T^{10} + 76\,806 T^{11} + 67\,096 T^{12} - 98\,450 T^{13} + 67\,096 T^{14} + 76\,806 T^{15} - 172\,740 T^{16} + 56\,192 T^{17} + \\
 & \quad \left. 85\,748 T^{18} - 68\,739 T^{19} + 24\,551 T^{20} - 49\,150 T^{21} + 67\,946 T^{22} - 47\,991 T^{23} + 19\,479 T^{24} - 4277 T^{25} + 390 T^{26} \right) \\
 & - \frac{1}{T^9} \left(44 - 585 T + 4940 T^2 - 27\,950 T^3 + 107\,126 T^4 - 253\,905 T^5 + \right. \\
 & \quad 340\,856 T^6 - 228\,825 T^7 + 36\,710 T^8 + 54\,974 T^9 + 36\,710 T^{10} - 228\,825 T^{11} + \\
 & \quad \left. 340\,856 T^{12} - 253\,905 T^{13} + 107\,126 T^{14} - 27\,950 T^{15} + 4940 T^{16} - 585 T^{17} + 44 T^{18} \right) \\
 & - \frac{1}{T^9} \left(92 - 2268 T + 21\,636 T^2 - 102\,276 T^3 + 257\,966 T^4 - 306\,446 T^5 + \right. \\
 & \quad 20\,986 T^6 + 299\,213 T^7 - 212\,584 T^8 + 58\,794 T^9 - 212\,584 T^{10} + 299\,213 T^{11} + \\
 & \quad \left. 20\,986 T^{12} - 306\,446 T^{13} + 257\,966 T^{14} - 102\,276 T^{15} + 21\,636 T^{16} - 2268 T^{17} + 92 T^{18} \right) \\
 & - \frac{562 - 10\,253 T + 41\,680 T^2 - 33\,310 T^3 - 16\,086 T^4 + 47\,098 T^5 - 16\,086 T^6 - 33\,310 T^7 + 41\,680 T^8 - 10\,253 T^9 + 562 T^{10}}{T^5}
 \end{aligned}$$

$$\begin{aligned}
& - \frac{1}{T^{13}} \left(150 - 2150 T + 14\,238 T^2 - 56\,239 T^3 + 145\,675 T^4 - 260\,253 T^5 + \right. \\
& \quad 347\,463 T^6 - 385\,617 T^7 + 343\,067 T^8 - 182\,980 T^9 + 28\,003 T^{10} - 4749 T^{11} + 58\,818 T^{12} - \\
& \quad 79\,184 T^{13} + 58\,818 T^{14} - 4749 T^{15} + 28\,003 T^{16} - 182\,980 T^{17} + 343\,067 T^{18} - 385\,617 T^{19} + \\
& \quad \left. 347\,463 T^{20} - 260\,253 T^{21} + 145\,675 T^{22} - 56\,239 T^{23} + 14\,238 T^{24} - 2150 T^{25} + 150 T^{26} \right) \\
& - \frac{1}{T^9} \left(100 - 2440 T + 24\,213 T^2 - 128\,041 T^3 + 406\,481 T^4 - 835\,664 T^5 + \right. \\
& \quad 1\,119\,444 T^6 - 869\,807 T^7 + 211\,248 T^8 + 161\,484 T^9 + 211\,248 T^{10} - 869\,807 T^{11} + \\
& \quad \left. 1\,119\,444 T^{12} - 835\,664 T^{13} + 406\,481 T^{14} - 128\,041 T^{15} + 24\,213 T^{16} - 2440 T^{17} + 100 T^{18} \right) \\
& - \frac{1}{T^9} \left(27\,252 - 186\,588 T + 621\,624 T^2 - 1\,315\,084 T^3 + 2\,116\,734 T^4 - 2\,601\,462 T^5 + 2\,258\,726 T^6 - \right. \\
& \quad 1\,259\,543 T^7 + 334\,984 T^8 + 20\,394 T^9 + 334\,984 T^{10} - 1\,259\,543 T^{11} + 2\,258\,726 T^{12} - \\
& \quad \left. 2\,601\,462 T^{13} + 2\,116\,734 T^{14} - 1\,315\,084 T^{15} + 621\,624 T^{16} - 186\,588 T^{17} + 27\,252 T^{18} \right)
\end{aligned}$$