

Pensieve header: Analyzing the 1-smidgen invariant on the Rolfsen table.

```
SetDirectory["C:\\drorbn\\AcademicPensieve\\2016-09"];
<< KnotTheory`
tab = Get["tab.m"] ∪ Get["tab11.m"]
```

Loading KnotTheory` version of September 6, 2014, 13:37:37.2841.

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

```
{Knot[3, 1] →
  {1.28125, E[-1 + 1/t + t, 0, 0, 16 + 9c/2 + 2/t^4 - 2c/t^3 - 7/2t^3 + 11c/2t^2 + 14/t^2 - 8c/t - 18/t + 4c/t - 10t - 10ct + 4t^2 + 8ct^2 - t^3 -
    3ct^3/2 - 2ct^4 + 2ct^5 - ct^6/2 - 4uw + 2uw/t^4 - 7uw/2t^3 + 9uw/2t^2 + uw/2t + 6t uw - 2t^2 uw - 1/2 t^3 uw + 3/2 t^4 uw - 1/2 t^5 uw]},
Knot[4, 1] → {1.60938, E[3 - 1/t - t, 0, 0, ... 1 ...]}, ... 798 ... ,
Knot[11, NonAlternating, 185] → {35.2656, E[31 - 2/t^3 + 11/t^2 - 24/t - 24t + 11t^2 - 2t^3, 0, 0, -38479048 +
  5666657c + 12/t^12 - 96c/t^12 - 164/t^11 + 1912c/t^11 + 775/t^10 - 17852c/t^10 + 584/t^9 + 104330c/t^9 - 28495/t^8 - 429247c/t^8 + 194334/t^7 + ... 77 ... +
  1067290uw/t + 6264428t uw - 5538405t^2 uw + 3312298t^3 uw - 1038884t^4 uw - 326629t^5 uw + 705754t^6 uw -
  541389t^7 uw + 273391t^8 uw - 98777t^9 uw + 25511t^10 uw - 4494t^11 uw + 484t^12 uw - 24t^13 uw]}}
```

large output

show less

show more

show all

set size limit...

```
z[K_Knot] := (K /. tab) [[2]];
za[K_Knot] := z[K] [[1]];
zp1[K_Knot] := Factor[z[K] [[4]] /. c | u | w → 0 / (t - 1) za[K]^2];
zp2[K_Knot] := Factor[Coefficient[z[K] [[4]], c] / (t - 1/t) (-4 - t + t^2) za[K]^3];
```

Column[AllKnots[{3, 7}] /. tab /.

{_, E[a_, 0, 0, p_]} ⇒ {a, p /. {c | u | w → 0}, Coefficient[p, c], Coefficient[p, uw]}

```
{-1 + 1/t + t, 16 + 2/t^4 - 7/t^3 + 14/t^2 - 18/t - 10t + 4t^2 - t^3,
  9/2 - 2/t^4 + 11/2t^3 - 8/t^2 + 4/t - 10t + 8t^2 - 3t^3/2 - 2t^4 + 2t^5 - t^6/2, -4 + 2/t^4 - 7/2t^3 + 9/2t^2 + 1/t + 6t - 2t^2 - t^3/2 + 3t^4/2 - t^5/2}
{3 - 1/t - t, 1/t^4 - 9/t^3 + 29/t^2 - 36/t + 36t - 29t^2 + 9t^3 - t^4,
  65/2 - 2/t^4 + 35/2t^3 - 53/t^2 + 53/t - 90t + 40t^2 + 29t^3/2 - 17t^4 + 5t^5 - t^6/2, -48 + 2/t^4 - 31/2t^3 + 75/2t^2 - 31/2t + 42t + 2t^2 - 25t^3/2 + 9t^4/2 - t^5/2}
{1 + 1/t^2 - 1/t - t + t^2, 128 + 4/t^8 - 15/t^7 + 34/t^6 - 61/t^5 + 94/t^4 - 123/t^3 + 140/t^2 - 142/t - 102t + 72t^2 - 45t^3 + 24t^4 - 11t^5 + 4t^6 - t^7,
  27 - 4/t^8 + 13/t^7 - 51/2t^6 + 39/t^5 - 50/t^4 + 48/t^3 - 31/t^2 + 7/2t - 50t + 58t^2 - 51t^3 + 67t^4/2 - 13t^5 + 6t^7 - 7t^8 + 9t^9/2 - t^10,
  -20 + 4/t^8 - 9/t^7 + 33/2t^6 - 45/2t^5 + 55/2t^4 - 41/2t^3 + 21/2t^2 + 7/t + 30t - 28t^2 + 23t^3 - 21t^4/2 + 5t^5/2 + 5t^6/2 - 7t^7/2 + 7t^8/2 - t^9}
{-3 + 2/t + 2t, 682 + 36/t^4 - 188/t^3 + 465/t^2 - 696/t - 444t + 185t^2 - 44t^3 + 4t^4,
  133 - 32/t^4 + 136/t^3 - 236/t^2 + 146/t - 315t + 217t^2 - 11t^3 - 74t^4 + 44t^5 - 8t^6,
  -147 + 32/t^4 - 104/t^3 + 132/t^2 - 14/t + 168t - 49t^2 - 38t^3 + 36t^4 - 8t^5}
{5 - 2/t - 2t, 578 + 20/t^4 - 164/t^3 + 525/t^2 - 812/t - 72t - 139t^2 + 76t^3 - 12t^4,
  351 - 32/t^4 + 232/t^3 - 596/t^2 + 514/t - 925t + 479t^2 + 111t^3 - 194t^4 + 68t^5 - 8t^6,
  -469 + 32/t^4 - 200/t^3 + 396/t^2 - 118/t + 456t - 23t^2 - 134t^3 + 60t^4 - 8t^5}
{-3 - 1/t^2 + 3/t + 3t - t^2,
  1696 + 3/t^8 - 33/t^7 + 163/t^6 - 493/t^5 + 1051/t^4 - 1699/t^3 + 2151/t^2 - 2156/t - 1004t + 387t^2 - 25t^3 - 91t^4 + 77t^5 - 35t^6 + 9t^7 - t^8, 729 - 4/t^8 +
  41/t^7 - 373/2t^6 + 510/t^5 - 950/t^4 + 1246/t^3 - 1060/t^2 + 585/2t - 1440t + 1476t^2 - 945t^3 + 565t^4/2 + 134t^5 - 230t^6 + 150t^7 - 56t^8 + 23t^9/2 - t^10,
  -618 + 4/t^8 - 37/t^7 + 299/2t^6 - 721/2t^5 + 1179/2t^4 - 1313/2t^3 + 807/2t^2 + 111/t + 822t - 654t^2 + 291t^3 + 17t^4/2 - 251t^5/2 + 209t^6/2 - 91t^7/2 + 21t^8/2 - t^9}
```

$$\begin{aligned}
& \left\{ 5 + \frac{1}{t^2} - \frac{3}{t} - 3t + t^2, \right. \\
& \left. \frac{2}{t^8} - \frac{21}{t^7} + \frac{111}{t^6} - \frac{375}{t^5} + \frac{883}{t^4} - \frac{1485}{t^3} + \frac{1738}{t^2} - \frac{1212}{t} + 1212t - 1738t^2 + 1485t^3 - 883t^4 + 375t^5 - 111t^6 + 21t^7 - 2t^8, 1475 - \frac{4}{t^8} + \right. \\
& \left. \frac{41}{t^7} - \frac{421}{2t^6} + \frac{684}{t^5} - \frac{1523}{t^4} + \frac{2341}{t^3} - \frac{2292}{2t^2} + \frac{1625}{2t} - 3030t + 2870t^2 - 1495t^3 + \frac{309t^4}{2} + 434t^5 - 407t^6 + 201t^7 - 62t^8 + \frac{23t^9}{2} - t^{10}, \right. \\
& \left. -1324 + \frac{4}{t^8} - \frac{37}{t^7} + \frac{347}{2t^6} - \frac{1021}{2t^5} + \frac{2025}{2t^4} - \frac{2657}{2t^3} + \frac{1927}{2t^2} + \frac{151}{t} + 1706t - 1164t^2 + 331t^3 + \frac{353t^4}{2} - \frac{515t^5}{2} + \frac{299t^6}{2} - \frac{103t^7}{2} + \frac{21t^8}{2} - t^9 \right\} \\
& \left\{ -1 + \frac{1}{t^3} - \frac{1}{t^2} + \frac{1}{t} + t - t^2 + t^3, 496 + \frac{6}{t^{12}} - \frac{23}{t^{11}} + \frac{54}{t^{10}} - \frac{101}{t^9} + \frac{164}{t^8} - \frac{242}{t^7} + \frac{332}{t^6} - \frac{419}{t^5} + \frac{490}{t^4} - \right. \\
& \left. \frac{537}{t^3} + \frac{554}{t^2} - \frac{540}{t} - 428t + 348t^2 - 267t^3 + 192t^4 - 129t^5 + 80t^6 - 46t^7 + 24t^8 - 11t^9 + 4t^{10} - t^{11}, \right. \\
& \left. \frac{159}{2} - \frac{6}{t^{12}} + \frac{41}{2t^{11}} - \frac{43}{t^{10}} + \frac{72}{t^9} - \frac{105}{t^8} + \frac{277}{2t^7} - \frac{168}{t^6} + \frac{178}{t^5} - \frac{325}{2t^4} + \frac{123}{t^3} - \frac{64}{t^2} - \frac{7}{t} - 140t + 178t^2 - \frac{381t^3}{2} + 179t^4 - 148t^5 + \right. \\
& \left. 105t^6 - \frac{121t^7}{2} + 28t^8 - 6t^9 - \frac{15t^{10}}{2} + 13t^{11} - 12t^{12} + 7t^{13} - \frac{3t^{14}}{2}, -56 + \frac{6}{t^{12}} - \frac{29}{2t^{11}} + \frac{57}{2t^{10}} - \frac{87}{2t^9} + \frac{123}{2t^8} - \frac{77}{t^7} + \frac{91}{t^6} - \right. \\
& \left. \frac{87}{t^5} + \frac{151}{2t^4} - \frac{95}{2t^3} + \frac{33}{2t^2} + \frac{47}{2t} + 84t - 94t^2 + \frac{193t^3}{2} - \frac{165t^4}{2} + \frac{131t^5}{2} - \frac{79t^6}{2} + 21t^7 - 7t^8 - t^9 + \frac{13t^{10}}{2} - \frac{13t^{11}}{2} + \frac{11t^{12}}{2} - \frac{3t^{13}}{2} \right\} \\
& \left\{ -5 + \frac{3}{t} + 3t, 5472 + \frac{207}{t^4} - \frac{1221}{t^3} + \frac{3299}{t^2} - \frac{5288}{t} - 3728t + 1625t^2 - 411t^3 + 45t^4, \right. \\
& \left. \frac{1617}{2} - \frac{162}{t^4} + \frac{1539}{2t^3} - \frac{1431}{t^2} + \frac{939}{t} - 1950t + 1284t^2 - \frac{3t^3}{2} - 459t^4 + 243t^5 - \frac{81t^6}{2}, \right. \\
& \left. -924 + \frac{162}{t^4} - \frac{1215}{2t^3} + \frac{1647}{2t^2} - \frac{231}{2t} + 1026t - 258t^2 - \frac{513t^3}{2} + \frac{405t^4}{2} - \frac{81t^5}{2} \right\} \\
& \left\{ 3 + \frac{2}{t^2} - \frac{3}{t} - 3t + 2t^2, -7498 - \frac{4}{t^8} + \frac{44}{t^7} - \frac{197}{t^6} + \frac{586}{t^5} - \frac{1363}{t^4} + \frac{2627}{t^3} - \right. \\
& \left. \frac{4299}{t^2} + \frac{6082}{t} + 8062t - 7557t^2 + 6137t^3 - 4245t^4 + 2446t^5 - 1133t^6 + 380t^7 - 68t^8, \right. \\
& \left. \frac{2619}{2} - \frac{64}{t^8} + \frac{320}{t^7} - \frac{836}{t^6} + \frac{1542}{t^5} - \frac{2183}{t^4} + \frac{4649}{2t^3} - \frac{1660}{t^2} + \frac{288}{t} - 2475t + 2763t^2 - \frac{4401t^3}{2} + 1190t^4 - 262t^5 - \right. \\
& \left. \frac{499t^6}{2} + 363t^7 - 254t^8 + 100t^9 - 16t^{10}, -1041 + \frac{64}{t^8} - \frac{256}{t^7} + \frac{580}{t^6} - \frac{962}{t^5} + \frac{1221}{t^4} - \frac{2207}{2t^3} + \right. \\
& \left. \frac{1113}{2t^2} + \frac{537}{2t} + 1434t - 1329t^2 + \frac{1743t^3}{2} - \frac{637t^4}{2} - \frac{113t^5}{2} + 193t^6 - 170t^7 + 84t^8 - 16t^9 \right\} \\
& \left\{ -7 + \frac{4}{t} + 4t, -18800 - \frac{128}{t^4} + \frac{1280}{t^3} - \frac{5352}{t^2} + \frac{12660}{t} + 18092t - 11080t^2 + 3968t^3 - 640t^4, \right. \\
& \left. 2790 - \frac{512}{t^4} + \frac{2560}{t^3} - \frac{4928}{t^2} + \frac{3328}{t} - 6790t + 4370t^2 + 102t^3 - 1592t^4 + 800t^5 - 128t^6, \right. \\
& \left. -3238 + \frac{512}{t^4} - \frac{2048}{t^3} + \frac{2880}{t^2} - \frac{448}{t} + 3552t - 818t^2 - 920t^3 + 672t^4 - 128t^5 \right\} \\
& \left\{ 5 + \frac{2}{t^2} - \frac{4}{t} - 4t + 2t^2, 25034 + \frac{68}{t^8} - \frac{504}{t^7} + \frac{1964}{t^6} - \frac{5256}{t^5} + \frac{10705}{t^4} - \frac{17458}{t^3} + \right. \\
& \left. \frac{23454}{t^2} - \frac{26378}{t} - 20082t + 13558t^2 - 7618t^3 + 3489t^4 - 1256t^5 + 332t^6 - 56t^7 + 4t^8, \right. \\
& \left. 4048 - \frac{64}{t^8} + \frac{432}{t^7} - \frac{1504}{t^6} + \frac{3480}{t^5} - \frac{5808}{t^4} + \frac{7036}{t^3} - \frac{5632}{t^2} + \frac{1362}{t} - 7870t + 8322t^2 - 5792t^3 + 2282t^4 + \right. \\
& \left. 264t^5 - 1172t^6 + 960t^7 - 456t^8 + 128t^9 - 16t^{10}, -3350 + \frac{64}{t^8} - \frac{368}{t^7} + \frac{1136}{t^6} - \frac{2344}{t^5} + \frac{3464}{t^4} - \right. \\
& \left. \frac{3572}{t^3} + \frac{2060}{t^2} + \frac{698}{t} + 4520t - 3802t^2 + 1990t^3 - 292t^4 - 556t^5 + 616t^6 - 344t^7 + 112t^8 - 16t^9 \right\} \\
& \left\{ -7 - \frac{1}{t^2} + \frac{5}{t} + 5t - t^2, \right. \\
& \left. 21448 + \frac{3}{t^8} - \frac{55}{t^7} + \frac{442}{t^6} - \frac{2071}{t^5} + \frac{6366}{t^4} - \frac{13705}{t^3} + \frac{21471}{t^2} - \frac{24930}{t} - 13330t + 5515t^2 - 1075t^3 - 280t^4 + 279t^5 - 92t^6 + 15t^7 - t^8, \right. \\
& \left. 6889 - \frac{4}{t^8} + \frac{69}{t^7} - \frac{1031}{2t^6} + \frac{2199}{t^5} - \frac{5925}{t^4} + \frac{10381}{t^3} - \frac{11137}{t^2} + \frac{8907}{2t} - 14500t + \right. \\
& \left. 13056t^2 - 5741t^3 - \frac{1001t^4}{2} + 2469t^5 - 1715t^6 + 651t^7 - 147t^8 + \frac{37t^9}{2} - t^{10}, \right. \\
& \left. -6410 + \frac{4}{t^8} - \frac{65}{t^7} + \frac{901}{2t^6} - \frac{3497}{2t^5} + \frac{8353}{2t^4} - \frac{12409}{2t^3} + \frac{9865}{2t^2} + \frac{479}{t} + 8090t - 4966t^2 + 775t^3 + \frac{2551t^4}{2} - \frac{2387t^5}{2} + \frac{1043t^6}{2} - \frac{259t^7}{2} + \frac{35t^8}{2} - t^9 \right\} \\
& \left\{ 9 + \frac{1}{t^2} - \frac{5}{t} - 5t + t^2, -5984 + \frac{2}{t^8} - \frac{35}{t^7} + \frac{276}{t^6} - \frac{1281}{t^5} + \frac{3824}{t^4} - \frac{7459}{t^3} + \right. \\
& \left. \frac{8874}{t^2} - \frac{4026}{t} + 14014t - 14650t^2 + 9731t^3 - 4406t^4 + 1369t^5 - 282t^6 + 35t^7 - 2t^8, \right. \\
& \left. 10391 - \frac{4}{t^8} + \frac{69}{t^7} - \frac{1079}{2t^6} + \frac{2493}{t^5} - \frac{7428}{t^4} + \frac{14470}{t^3} - \frac{17169}{t^2} + \frac{15723}{2t} - 22550t + 19014t^2 - 6799t^3 - \frac{3897t^4}{2} + \right. \\
& \left. 3705t^5 - 2162t^6 + 732t^7 - 153t^8 + \frac{37t^9}{2} - t^{10}, -10144 + \frac{4}{t^8} - \frac{65}{t^7} + \frac{949}{2t^6} - \frac{4037}{2t^5} + \frac{10819}{2t^4} - \frac{18121}{2t^3} + \frac{16217}{2t^2} - \right. \\
& \left. \frac{18121}{2t^3} + \frac{16217}{2t^2} + \frac{247}{t} + 12406t - 6608t^2 + 191t^3 + \frac{4279t^4}{2} - \frac{3131t^5}{2} + \frac{1193t^6}{2} - \frac{271t^7}{2} + \frac{35t^8}{2} - t^9 \right\}
\end{aligned}$$

$$\begin{aligned}
& \frac{1}{\left(9 + \frac{1}{t^2} - \frac{5}{t} - 5t + t^2\right)^3} \left(-10144 + \frac{4}{t^8} - \frac{65}{t^7} + \frac{949}{2t^6} - \frac{4037}{2t^5} + \frac{10819}{2t^4} - \frac{18121}{2t^3} + \frac{16217}{2t^2} + \right. \\
& \left. \frac{247}{t} + 12406t - 6608t^2 + 191t^3 + \frac{4279t^4}{2} - \frac{3131t^5}{2} + \frac{1193t^6}{2} - \frac{271t^7}{2} + \frac{35t^8}{2} - t^9 \right) // \text{Simplify} \\
& -\frac{17}{2} + \frac{4}{t^2} - \frac{5}{t} + 4t + \frac{5t^2}{2} - t^3
\end{aligned}$$

$$\begin{aligned}
& \text{PolynomialRemainder} \left[-10144 + \frac{4}{t^8} - \frac{65}{t^7} + \frac{949}{2t^6} - \frac{4037}{2t^5} + \frac{10819}{2t^4} - \frac{18121}{2t^3} + \frac{16217}{2t^2} + \frac{247}{t} + \right. \\
& \left. 12406t - 6608t^2 + 191t^3 + \frac{4279t^4}{2} - \frac{3131t^5}{2} + \frac{1193t^6}{2} - \frac{271t^7}{2} + \frac{35t^8}{2} - t^9, 9 + \frac{1}{t^2} - \frac{5}{t} - 5t + t^2, t \right]
\end{aligned}$$

0

$$\text{Column}[\text{AllKnots}[\{3, 7\}] /. \text{tab} /. \{_, \mathbb{E}[a_, \theta, \theta, p_]\} \Rightarrow \{a, \text{Factor}\left[\frac{p /. \{c | u | w \rightarrow \theta\}}{(t-1) a^2}\right],$$

$$\text{Factor}\left[\frac{\text{Coefficient}[p, c]}{(t^2-1)(-4-t+t^2) a^3}\right], \text{Simplify}\left[\frac{(t-1) \text{Coefficient}[p, uw] - \text{Coefficient}[p, c]}{(1+t)(-4-t+t^2) a^3}\right]\}]]$$

$$\left\{-1 + \frac{1}{t} + t, -\frac{2-t+t^2}{t^2}, -\frac{1}{2t}, \theta\right\}$$

$$\left\{3 - \frac{1}{t} - t, -\frac{(1+t)(1-3t+t^2)}{t^2}, \frac{1}{2t}, \theta\right\}$$

$$\left\{1 + \frac{1}{t^2} - \frac{1}{t} - t + t^2, -\frac{4-3t+5t^2-3t^3+3t^4-t^5+t^6}{t^4}, -\frac{2-t+2t^2}{2t^2}, \theta\right\}$$

$$\left\{-3 + \frac{2}{t} + 2t, \frac{-9+11t-7t^2+t^3}{t^2}, -\frac{1}{t}, \theta\right\}$$

$$\left\{5 - \frac{2}{t} - 2t, -\frac{5-11t-t^2+3t^3}{t^2}, \frac{1}{t}, \theta\right\}$$

$$\left\{-3 - \frac{1}{t^2} + \frac{3}{t} + 3t - t^2, -\frac{3-12t+16t^2-12t^3+4t^4-2t^6+t^7}{t^4}, \frac{2-3t+2t^2}{2t^2}, \theta\right\}$$

$$\left\{5 + \frac{1}{t^2} - \frac{3}{t} - 3t + t^2, -\frac{(1+t)(2-3t+2t^2)(1-3t+5t^2-3t^3+t^4)}{t^4}, -\frac{2-3t+2t^2}{2t^2}, \theta\right\}$$

$$\left\{-1 + \frac{1}{t^3} - \frac{1}{t^2} + \frac{1}{t} + t - t^2 + t^3, -\frac{6-5t+9t^2-7t^3+9t^4-6t^5+6t^6-3t^7+3t^8-t^9+t^{10}}{t^6}, -\frac{3-2t+4t^2-2t^3+3t^4}{2t^3}, \theta\right\}$$

$$\left\{-5 + \frac{3}{t} + 3t, \frac{-23+36t-24t^2+5t^3}{t^2}, -\frac{3}{2t}, \theta\right\}$$

$$\left\{3 + \frac{2}{t^2} - \frac{3}{t} - 3t + 2t^2, -\frac{-1+7t-13t^2+24t^3-32t^4+35t^5-27t^6+17t^7}{t^4}, -\frac{4-3t+4t^2}{2t^2}, \theta\right\}$$

$$\left\{-7 + \frac{4}{t} + 4t, -\frac{4(-2+11t-17t^2+10t^3)}{t^2}, -\frac{2}{t}, \theta\right\}$$

$$\left\{5 + \frac{2}{t^2} - \frac{4}{t} - 4t + 2t^2, \frac{-17+41t-65t^2+65t^3-49t^4+25t^5-9t^6+t^7}{t^4}, -\frac{2(1-t+t^2)}{t^2}, \theta\right\}$$

$$\left\{-7 - \frac{1}{t^2} + \frac{5}{t} + 5t - t^2, -\frac{3-22t+53t^2-53t^3+25t^4-t^5-4t^6+t^7}{t^4}, \frac{(-2+t)(-1+2t)}{2t^2}, \theta\right\}$$

$$\left\{9 + \frac{1}{t^2} - \frac{5}{t} - 5t + t^2, -\frac{2-13t+27t^2-9t^3-31t^4+33t^5-13t^6+2t^7}{t^4}, -\frac{(-2+t)(-1+2t)}{2t^2}, \theta\right\}$$

$$\text{mat} = \text{AllKnots}[\{3, 8\}] /. \text{tab} /. \{_, \mathbb{E}[a_, \theta, \theta, p_]\} \Rightarrow \{a, \text{Factor}\left[\frac{p /. \{c | u | w \rightarrow \theta\}}{(t-1) a^2}\right],$$

$$\text{Factor}\left[\frac{\text{Coefficient}[p, c]}{(t^2-1)(-4-t+t^2) a^3}\right], \text{Simplify}\left[\frac{(t-1) \text{Coefficient}[p, uw] - \text{Coefficient}[p, c]}{(1+t)(-4-t+t^2) a^3}\right]\}]]$$

$$\left\{\left\{-1 + \frac{1}{t} + t, -\frac{2-t+t^2}{t^2}, -\frac{1}{2t}, \theta\right\}, \left\{3 - \frac{1}{t} - t, -\frac{(1+t)(1-3t+t^2)}{t^2}, \frac{1}{2t}, \theta\right\},$$

$$\left\{1 + \frac{1}{t^2} - \frac{1}{t} - t + t^2, -\frac{4-3t+5t^2-3t^3+3t^4-t^5+t^6}{t^4}, -\frac{2-t+2t^2}{2t^2}, \theta\right\},$$

$$\left\{-3 + \frac{2}{t} + 2t, \frac{-9+11t-7t^2+t^3}{t^2}, -\frac{1}{t}, \theta\right\}, \left\{5 - \frac{2}{t} - 2t, -\frac{5-11t-t^2+3t^3}{t^2}, \frac{1}{t}, \theta\right\},$$

$$\left\{-3 - \frac{1}{t^2} + \frac{3}{t} + 3t - t^2, -\frac{3-12t+16t^2-12t^3+4t^4-2t^6+t^7}{t^4}, \frac{2-3t+2t^2}{2t^2}, \theta\right\},$$

$$\left\{5 + \frac{1}{t^2} - \frac{3}{t} - 3t + t^2, -\frac{(1+t)(2-3t+2t^2)(1-3t+5t^2-3t^3+t^4)}{t^4}, -\frac{2-3t+2t^2}{2t^2}, \theta\right\},$$

$$\left\{-1 + \frac{1}{t^3} - \frac{1}{t^2} + \frac{1}{t} + t - t^2 + t^3, -\frac{6-5t+9t^2-7t^3+9t^4-6t^5+6t^6-3t^7+3t^8-t^9+t^{10}}{t^6},$$

$$-\frac{3-2t+4t^2-2t^3+3t^4}{2t^3}, \theta\right\}, \left\{-5 + \frac{3}{t} + 3t, \frac{-23+36t-24t^2+5t^3}{t^2}, -\frac{3}{2t}, \theta\right\},$$

$$\left\{3 + \frac{2}{t^2} - \frac{3}{t} - 3t + 2t^2, -\frac{-1+7t-13t^2+24t^3-32t^4+35t^5-27t^6+17t^7}{t^4}, -\frac{4-3t+4t^2}{2t^2}, \theta\right\},$$

$$\left\{-7 + \frac{4}{t} + 4t, -\frac{4(-2+11t-17t^2+10t^3)}{t^2}, -\frac{2}{t}, \theta\right\},$$

$$\left\{5 + \frac{2}{t^2} - \frac{4}{t} - 4t + 2t^2, \frac{-17+41t-65t^2+65t^3-49t^4+25t^5-9t^6+t^7}{t^4}, -\frac{2(1-t+t^2)}{t^2}, \theta\right\},$$

$$\left\{-7 - \frac{1}{t^2} + \frac{5}{t} + 5t - t^2, -\frac{3-22t+53t^2-53t^3+25t^4-t^5-4t^6+t^7}{t^4}, \frac{(-2+t)(-1+2t)}{2t^2}, \theta\right\},$$

$$\left\{9 + \frac{1}{t^2} - \frac{5}{t} - 5t + t^2, -\frac{2-13t+27t^2-9t^3-31t^4+33t^5-13t^6+2t^7}{t^4}, -\frac{(-2+t)(-1+2t)}{2t^2}, \theta\right\},$$

$$\left\{7 - \frac{3}{t} - 3t, -\frac{14-33t+9t^2+4t^3}{t^2}, \frac{3}{2t}, \theta\right\}, \left\{3 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{3}{t} - 3t + 3t^2 - t^3,$$

$$-\frac{(-1+t)(-5+17t-19t^2+21t^3-19t^4+12t^5-7t^6+3t^7-t^8-t^9+t^{10})}{t^6}, \frac{3(-1+t)^2(1+t^2)}{2t^3}, \theta\right\},$$

$$\left\{9 - \frac{4}{t} - 4t, -\frac{4(1+t)(4-9t+4t^2)}{t^2}, \frac{2}{t}, \theta\right\}, \left\{-5 - \frac{2}{t^2} + \frac{5}{t} + 5t - 2t^2,$$

$$\begin{aligned}
& -\frac{11-33t+37t^2-22t^3-2t^4+9t^5-11t^6+5t^7}{t^4}, \frac{4-5t+4t^2}{2t^2}, 0\}, \{5-\frac{1}{t^3}+\frac{3}{t^2}-\frac{4}{t}-4t+3t^2-t^3, \\
& -\frac{1-2t+t^2+4t^3-17t^4+36t^5-56t^6+67t^7-62t^8+43t^9-22t^{10}+5t^{11}}{t^6}, \frac{3-6t+7t^2-6t^3+3t^4}{2t^3}, 0\}, \\
& \{-7-\frac{2}{t^2}+\frac{6}{t}+6t-2t^2, -\frac{13-53t+84t^2-78t^3+42t^4-12t^5-3t^6+3t^7}{t^4}, \frac{2-3t+2t^2}{t^2}, 0\}, \\
& \{-5+\frac{1}{t^3}-\frac{3}{t^2}+\frac{5}{t}+5t-3t^2+t^3, -\frac{2-7t+12t^2-12t^3+6t^4+13t^5-37t^6+56t^7-56t^8+40t^9-17t^{10}+4t^{11}}{t^6}, \\
& -\frac{3-6t+8t^2-6t^3+3t^4}{2t^3}, 0\}, \{9+\frac{2}{t^2}-\frac{6}{t}-6t+2t^2, \\
& -\frac{7-23t+28t^2+6t^3-50t^4+60t^5-33t^6+9t^7}{t^4}, -\frac{2-3t+2t^2}{t^2}, 0\}, \{7-\frac{1}{t^3}+\frac{3}{t^2}-\frac{5}{t}-5t+3t^2-t^3, \\
& -\frac{(1+t)(-1+t-2t^2+t^3)(-1+2t-t^2+t^3)(3-6t+8t^2-6t^3+3t^4)}{t^6}, \frac{3-6t+8t^2-6t^3+3t^4}{2t^3}, 0\}, \\
& \{-7+\frac{1}{t^3}-\frac{3}{t^2}+\frac{6}{t}+6t-3t^2+t^3, -\frac{(1-t+t^2)^2(2-3t+3t^2+t^3-7t^4+15t^5-9t^6+4t^7)}{t^6}, -\frac{3(1-t+t^2)^2}{2t^3}, 0\}, \\
& \{-9-\frac{2}{t^2}+\frac{7}{t}+7t-2t^2, -\frac{13-63t+114t^2-109t^3+57t^4-12t^5-5t^6+3t^7}{t^4}, \frac{4-7t+4t^2}{2t^2}, 0\}, \\
& \{13+\frac{1}{t^2}-\frac{7}{t}-7t+t^2, -\frac{(1+t)(2-7t+2t^2)(1-7t+13t^2-7t^3+t^4)}{t^4}, -\frac{2-7t+2t^2}{2t^2}, 0\}, \\
& \{11+\frac{2}{t^2}-\frac{7}{t}-7t+2t^2, -\frac{7-29t+41t^2+2t^3-66t^4+77t^5-39t^6+9t^7}{t^4}, -\frac{4-7t+4t^2}{2t^2}, 0\}, \\
& \{-11-\frac{2}{t^2}+\frac{8}{t}+8t-2t^2, -\frac{(-1+t)^2(13-47t+46t^2-22t^3-t^4+3t^5)}{t^4}, \frac{2(-1+t)^2}{t^2}, 0\}, \\
& \{11+\frac{3}{t^2}-\frac{8}{t}-8t+3t^2, \frac{(3-4t+3t^2)(-13+29t-35t^2+23t^3-9t^4+t^5)}{t^4}, -\frac{3-4t+3t^2}{t^2}, 0\}, \\
& \{-9+\frac{1}{t^3}-\frac{4}{t^2}+\frac{8}{t}+8t-4t^2+t^3, -\frac{(1-t+t^2)(4-20t+46t^2-55t^3+38t^4-10t^5-9t^6+14t^7-8t^8+2t^9)}{t^6}, \\
& -\frac{(1-t+t^2)(3-5t+3t^2)}{2t^3}, 0\}, \{11-\frac{1}{t^3}+\frac{4}{t^2}-\frac{8}{t}-8t+4t^2-t^3, \\
& -\frac{(1+t)(1-t+t^2)(3-5t+3t^2)(1-4t+8t^2-11t^3+8t^4-4t^5+t^6)}{t^6}, \frac{(1-t+t^2)(3-5t+3t^2)}{2t^3}, 0\}, \\
& \{13-\frac{1}{t^3}+\frac{5}{t^2}-\frac{10}{t}-10t+5t^2-t^3, -\frac{(1+t)(1-3t+t^2)(1-t+t^2)^3(3-7t+3t^2)}{t^6}, \frac{(1-t+t^2)(3-7t+3t^2)}{2t^3}, 0\}, \\
& \{1+\frac{1}{t^3}-\frac{1}{t^2}-t^2+t^3, -\frac{1-t^2+2t^3+3t^4-3t^5+7t^7-5t^9+6t^{10}}{t^5}, -\frac{3-2t+3t^2-2t^3+3t^4}{2t^3}, 0\}, \\
& \{3+\frac{1}{t^2}-\frac{2}{t}-2t+t^2, -\frac{2(1-t+t^2)(1-t+3t^2-t^3-t^4+t^5)}{t^4}, -\frac{1-t+t^2}{t^2}, 0\}, \\
& \{-5-\frac{1}{t^2}+\frac{4}{t}+4t-t^2, -\frac{(-1+t)(-3+16t-24t^2+20t^3-8t^4+t^6)}{t^4}, \frac{(-1+t)^2}{t^2}, 0\}
\end{aligned}$$

mat // Dimensions

{35, 4}

MatrixRank[mat /. t -> RandomReal[] /. {x_, y_, z_, 0} => {1, x, y, z, x^2, xy, xz, y^2, z^2, yz}]

9

MatrixRank[mat /. {x_, y_, z_, 0} => ({1, x, y, z, t, tx, ty, tz} /. t -> RandomReal[])]

8

MatrixRank[mat /. {x_, y_, z_, 0} => ({1, x, y, z, t, tx, ty, tz, t^2, t^2x, t^2y, t^2z} /. t -> RandomReal[])]

12

MatrixRank[mat /. t -> RandomReal[] /. {x_, y_, z_, 0} => {1, x, y, z, x^2, xy, xz, x^3, x^2y, x^2z, x^4, x^3y, x^3z}]

12

MatrixRank[mat /. t -> RandomReal[] /.

{x_, y_, z_, 0} => {1, x, y, z, x^2, xy, xz, x^3, x^2y, x^2z, x^4, x^3y, x^3z, x^5, x^4y, x^4z}]

3

DeleteCases [Table [K → Together [$\frac{t D[za[K], t]}{t - t^{-1}} + 2 zp2[K]$], {K, AllKnots [{3, 11}]}], _ → 0]

{}

Table [{K[[1]]_{K[[2]]}, Factor@za[K], zp1[K]}, {K, AllKnots [{3, 8}]}] // MatrixForm

3 ₁	$\frac{1-t+t^2}{t}$	$-\frac{2-t+t^2}{t^2}$
4 ₁	$-\frac{1-3t+t^2}{t}$	$-\frac{(1+t)(1-3t+t^2)}{t^2}$
5 ₁	$\frac{1-t+t^2-t^3+t^4}{t^2}$	$-\frac{4-3t+5t^2-3t^3+3t^4-t^5+t^6}{t^4}$
5 ₂	$\frac{2-3t+2t^2}{t}$	$\frac{-9+11t-7t^2+t^3}{t^2}$
6 ₁	$-\frac{(-2+t)(-1+2t)}{t}$	$-\frac{5-11t-t^2+3t^3}{t^2}$
6 ₂	$-\frac{1-3t+3t^2-3t^3+t^4}{t^2}$	$-\frac{3-12t+16t^2-12t^3+4t^4-2t^6+t^7}{t^4}$
6 ₃	$\frac{1-3t+5t^2-3t^3+t^4}{t^2}$	$-\frac{(1+t)(2-3t+2t^2)(1-3t+5t^2-3t^3+t^4)}{t^4}$
7 ₁	$\frac{1-t+t^2-t^3+t^4-t^5+t^6}{t^3}$	$-\frac{6-5t+9t^2-7t^3+9t^4-6t^5+6t^6-3t^7+3t^8-t^9+t^{10}}{t^6}$
7 ₂	$\frac{3-5t+3t^2}{t}$	$\frac{-23+36t-24t^2+5t^3}{t^2}$
7 ₃	$\frac{2-3t+3t^2-3t^3+2t^4}{t^2}$	$-\frac{-1+7t-13t^2+24t^3-32t^4+35t^5-27t^6+17t^7}{t^4}$
7 ₄	$\frac{4-7t+4t^2}{t}$	$-\frac{4(-2+11t-17t^2+10t^3)}{t^2}$
7 ₅	$\frac{2-4t+5t^2-4t^3+2t^4}{t^2}$	$\frac{-17+41t-65t^2+65t^3-49t^4+25t^5-9t^6+t^7}{t^4}$
7 ₆	$-\frac{1-5t+7t^2-5t^3+t^4}{t^2}$	$-\frac{3-22t+53t^2-53t^3+25t^4-t^5-4t^6+t^7}{t^4}$
7 ₇	$\frac{1-5t+9t^2-5t^3+t^4}{t^2}$	$-\frac{2-13t+27t^2-9t^3-31t^4+33t^5-13t^6+2t^7}{t^4}$
8 ₁	$-\frac{3-7t+3t^2}{t}$	$-\frac{14-33t+9t^2+4t^3}{t^2}$
8 ₂	$-\frac{1-3t+3t^2-3t^3+3t^4-3t^5+t^6}{t^3}$	$-\frac{(-1+t)(-5+17t-19t^2+21t^3-19t^4+12t^5-7t^6+3t^7-t^8-t^9+t^{10})}{t^6}$
8 ₃	$-\frac{4-9t+4t^2}{t}$	$-\frac{4(1+t)(4-9t+4t^2)}{t^2}$
8 ₄	$-\frac{2-5t+5t^2-5t^3+2t^4}{t^2}$	$-\frac{11-33t+37t^2-22t^3-2t^4+9t^5-11t^6+5t^7}{t^4}$
8 ₅	$-\frac{(1-t+t^2)(1-2t+t^2-2t^3+t^4)}{t^3}$	$-\frac{1-2t+t^2+4t^3-17t^4+36t^5-56t^6+67t^7-62t^8+43t^9-22t^{10}+5t^{11}}{t^6}$
8 ₆	$-\frac{2-6t+7t^2-6t^3+2t^4}{t^2}$	$-\frac{13-53t+84t^2-78t^3+42t^4-12t^5-3t^6+3t^7}{t^4}$
8 ₇	$\frac{1-3t+5t^2-5t^3+5t^4-3t^5+t^6}{t^3}$	$-\frac{2-7t+12t^2-12t^3+6t^4+13t^5-37t^6+56t^7-56t^8+40t^9-17t^{10}+4t^{11}}{t^6}$
8 ₈	$\frac{(2-2t+t^2)(1-2t+2t^2)}{t^2}$	$-\frac{7-23t+28t^2+6t^3-50t^4+60t^5-33t^6+9t^7}{t^4}$
8 ₉	$-\frac{(-1+t-2t^2+t^3)(-1+2t-t^2+t^3)}{t^3}$	$-\frac{(1+t)(-1+t-2t^2+t^3)(-1+2t-t^2+t^3)(3-6t+8t^2-6t^3+3t^4)}{t^6}$
8 ₁₀	$\frac{(1-t+t^2)^3}{t^3}$	$-\frac{(1-t+t^2)^2(2-3t+3t^2+t^3-7t^4+15t^5-9t^6+4t^7)}{t^6}$
8 ₁₁	$-\frac{(-2+t)(-1+2t)(1-t+t^2)}{t^2}$	$-\frac{13-63t+114t^2-109t^3+57t^4-12t^5-5t^6+3t^7}{t^4}$
8 ₁₂	$\frac{1-7t+13t^2-7t^3+t^4}{t^2}$	$-\frac{(1+t)(2-7t+2t^2)(1-7t+13t^2-7t^3+t^4)}{t^4}$
8 ₁₃	$\frac{2-7t+11t^2-7t^3+2t^4}{t^2}$	$-\frac{7-29t+41t^2+2t^3-66t^4+77t^5-39t^6+9t^7}{t^4}$
8 ₁₄	$-\frac{2-8t+11t^2-8t^3+2t^4}{t^2}$	$-\frac{(-1+t)^2(13-47t+46t^2-22t^3-t^4+3t^5)}{t^4}$
8 ₁₅	$\frac{(1-t+t^2)(3-5t+3t^2)}{t^2}$	$\frac{(3-4t+3t^2)(-13+29t-35t^2+23t^3-9t^4+t^5)}{t^4}$
8 ₁₆	$\frac{1-4t+8t^2-9t^3+8t^4-4t^5+t^6}{t^3}$	$-\frac{(1-t+t^2)(4-20t+46t^2-55t^3+38t^4-10t^5-9t^6+14t^7-8t^8+2t^9)}{t^6}$
8 ₁₇	$-\frac{1-4t+8t^2-11t^3+8t^4-4t^5+t^6}{t^3}$	$-\frac{(1+t)(1-t+t^2)(3-5t+3t^2)(1-4t+8t^2-11t^3+8t^4-4t^5+t^6)}{t^6}$
8 ₁₈	$-\frac{(1-3t+t^2)(1-t+t^2)^2}{t^3}$	$-\frac{(1+t)(1-3t+t^2)(1-t+t^2)^3(3-7t+3t^2)}{t^6}$
8 ₁₉	$\frac{(1-t+t^2)(1-t^2+t^4)}{t^3}$	$-\frac{1-t^2+2t^3+3t^4-3t^5+7t^7-5t^9+6t^{10}}{t^5}$
8 ₂₀	$\frac{(1-t+t^2)^2}{t^2}$	$-\frac{2(1-t+t^2)(1-t+3t^2-t^3-t^4+t^5)}{t^4}$
8 ₂₁	$-\frac{(1-3t+t^2)(1-t+t^2)}{t^2}$	$-\frac{(-1+t)(-3+16t-24t^2+20t^3-8t^4+t^6)}{t^4}$

```
Table[{K[[1]]K[[2]], e1 = Exponent[za[K], t, Min], e2 = Exponent[zp1[K], t, Min], e2 == 2 e1},
  {K, AllKnots[{3, 7}]}] // MatrixForm
```

```
( 31 -1 -2 True
  41 -1 -2 True
  51 -2 -4 True
  52 -1 -2 True
  61 -1 -2 True
  62 -2 -4 True
  63 -2 -4 True
  71 -3 -6 True
  72 -1 -2 True
  73 -2 -4 True
  74 -1 -2 True
  75 -2 -4 True
  76 -2 -4 True
  77 -2 -4 True)
```

```
Select[AllKnots[{3, 11}], 2 Exponent[za[#], t, Min] != Exponent[zp1[#], t, Min] &]
{Knot[8, 19], Knot[10, 124], Knot[10, 139], Knot[10, 154], Knot[11, Alternating, 367],
 Knot[11, NonAlternating, 34], Knot[11, NonAlternating, 42], Knot[11, NonAlternating, 67],
 Knot[11, NonAlternating, 77], Knot[11, NonAlternating, 97], Knot[11, NonAlternating, 183]}
```

```
Table[{K[[1]]K[[2]], e1 = Exponent[za[K], t, Max], e2 = Exponent[zp1[K], t, Max],
  e2 == 2 e1 - 1, e3 = ThreeGenus[K], e1 == e3}, {K, AllKnots[{3, 8}]}] // MatrixForm
```

```
( 31 1 0 False 1 True
  41 1 1 True 1 True
  51 2 2 False 2 True
  52 1 1 True 1 True
  61 1 1 True 1 True
  62 2 3 True 2 True
  63 2 3 True 2 True
  71 3 4 False 3 True
  72 1 1 True 1 True
  73 2 3 True 2 True
  74 1 1 True 1 True
  75 2 3 True 2 True
  76 2 3 True 2 True
  77 2 3 True 2 True
  81 1 1 True 1 True
  82 3 5 True 3 True
  83 1 1 True 1 True
  84 2 3 True 2 True
  85 3 5 True 3 True
  86 2 3 True 2 True
  87 3 5 True 3 True
  88 2 3 True 2 True
  89 3 5 True 3 True
  810 3 5 True 3 True
  811 2 3 True 2 True
  812 2 3 True 2 True
  813 2 3 True 2 True
  814 2 3 True 2 True
  815 2 3 True 2 True
  816 3 5 True 3 True
  817 3 5 True 3 True
  818 3 5 True 3 True
  819 3 5 True 3 True
  820 2 3 True 2 True
  821 2 3 True 2 True)
```

Select[AllKnots[{3, 11}], 2 Exponent[za[#], t, Max] - 1 != Exponent[zp1[#], t, Max] &]

{Knot[3, 1], Knot[5, 1], Knot[7, 1], Knot[9, 1],
Knot[10, 145], Knot[10, 152], Knot[10, 161], Knot[11, NonAlternating, 34],
Knot[11, NonAlternating, 42], Knot[11, NonAlternating, 67], Knot[11, NonAlternating, 97]}

gna = Select[AllKnots[{3, 11}], Exponent[za[#], t, Max] ≠ ThreeGenus[#] &]

{Knot[11, NonAlternating, 34], Knot[11, NonAlternating, 42],
Knot[11, NonAlternating, 45], Knot[11, NonAlternating, 67], Knot[11, NonAlternating, 73],
Knot[11, NonAlternating, 97], Knot[11, NonAlternating, 152]}

ThreeGenus /@ gna

{3, 2, 3, 2, 3, 2, 3}

Exponent[za[#], t, Max] & /@ gna

{0, 0, 2, 1, 2, 1, 2}

Exponent[zp1[#], t, Min] & /@ gna

{-3, -3, -4, -3, -4, -3, -4}

Exponent[zp1[#], t, Max] & /@ gna

{2, 2, 3, 2, 3, 2, 3}

ThreeGenus /@ AllKnots[12]

KnotTheory: Loading precomputed data in KnotTheory/12A.dts.



KnotTheory: The GaussCode to PD conversion was written by Siddarth Sankaran at the University of Toronto in the summer of 2005.



KnotTheory: The three genus program was written by Jake Rasmussen of Princeton University.



Get: Cannot open DiscreteMath`Combinatorica`.



Needs: Context DiscreteMath`Combinatorica` was not created when Needs was evaluated.



Get: Cannot open DiscreteMath`Combinatorica`.



Needs: Context DiscreteMath`Combinatorica` was not created when Needs was evaluated.



Get: Cannot open DiscreteMath`Combinatorica`.



General: Further output of Get::noopen will be suppressed during this calculation.



Needs: Context DiscreteMath`Combinatorica` was not created when Needs was evaluated.



General: Further output of Needs::nocont will be suppressed during this calculation.



KnotTheory: Loading precomputed data in KnotTheory/12N.dts.



{4, 4, 3, 4, 3, 4, 4, 4, 3, 3, 4, 3, 4, 4, 4, 4, 4, 4, 4, 3, 3, 3, 4, 3, 4, 3, 3, 4, 4, 3, 3, 4, 4, 3, 4, 3, 2, 4, 4,
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? ThreeGenus

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ThreeGenus[K] returns the 3-genus of the knot K or a list of the form {lower bound, upper bound}.

$$\text{Table} \left[\left\{ K[[1]]_{K[[2]]}, \text{Factor@za}[K], \text{Factor@} \left(\frac{\text{za}[K] t^2 D[\text{za}[K], t] + t (t-1) \text{zp1}[K]}{(t-1)^2} \right) \right\}, \right.$$

2 Exponent[za[K], t, Min] == Exponent[zp1[K], t, Min] ^ 2 Exponent[za[K], t, Max] ==
 Exponent[t zp1[K], t, Max], ThreeGenus[K]], {K, AllKnots[{3, 8}]}] // MatrixForm

3 ₁	$\frac{1-t+t^2}{t}$	$\frac{1+t^2}{t}$	False	1
4 ₁	$-\frac{1-3t+t^2}{t}$	0	True	1
5 ₁	$\frac{1-t+t^2-t^3+t^4}{t^2}$	$\frac{(1+t^2)(2+t^2+2t^4)}{t^3}$	False	2
5 ₂	$\frac{2-3t+2t^2}{t}$	$\frac{5-4t+5t^2}{t}$	True	1
6 ₁	$-\frac{(-2+t)(-1+2t)}{t}$	$\frac{1-4t+t^2}{t}$	True	1
6 ₂	$-\frac{1-3t+3t^2-3t^3+t^4}{t^2}$	$\frac{1-4t+4t^2-4t^3+4t^4-4t^5+t^6}{t^3}$	True	2
6 ₃	$\frac{1-3t+5t^2-3t^3+t^4}{t^2}$	0	True	2
7 ₁	$\frac{1-t+t^2-t^3+t^4-t^5+t^6}{t^3}$	$\frac{(1+t^2)(3+2t^2+4t^4+2t^6+3t^8)}{t^5}$	False	3
7 ₂	$\frac{3-5t+3t^2}{t}$	$\frac{2(7-8t+7t^2)}{t}$	True	1
7 ₃	$\frac{2-3t+3t^2-3t^3+2t^4}{t^2}$	$-\frac{9-8t+16t^2-12t^3+16t^4-8t^5+9t^6}{t^3}$	True	2
7 ₄	$\frac{4-7t+4t^2}{t}$	$-\frac{8(3-4t+3t^2)}{t}$	True	1
7 ₅	$\frac{2-4t+5t^2-4t^3+2t^4}{t^2}$	$\frac{9-16t+29t^2-28t^3+29t^4-16t^5+9t^6}{t^3}$	True	2
7 ₆	$-\frac{1-5t+7t^2-5t^3+t^4}{t^2}$	$\frac{1-8t+19t^2-20t^3+19t^4-8t^5+t^6}{t^3}$	True	2
7 ₇	$\frac{1-5t+9t^2-5t^3+t^4}{t^2}$	$-\frac{3-8t+3t^2}{t}$	True	2
8 ₁	$-\frac{3-7t+3t^2}{t}$	$\frac{5-16t+5t^2}{t}$	True	1
8 ₂	$-\frac{1-3t+3t^2-3t^3+3t^4-3t^5+t^6}{t^3}$	$\frac{2-8t+10t^2-12t^3+13t^4-12t^5+13t^6-12t^7+10t^8-8t^9+2t^{10}}{t^5}$	True	3
8 ₃	$-\frac{4-9t+4t^2}{t}$	0	True	1
8 ₄	$-\frac{2-5t+5t^2-5t^3+2t^4}{t^2}$	$\frac{3-8t+6t^2-4t^3+6t^4-8t^5+3t^6}{t^3}$	True	2
8 ₅	$-\frac{(1-t+t^2)(1-2t+t^2-2t^3+t^4)}{t^3}$	$-\frac{(1+t^2)(2-8t+11t^2-12t^3+11t^4-12t^5+11t^6-8t^7+2t^8)}{t^5}$	True	3
8 ₆	$-\frac{2-6t+7t^2-6t^3+2t^4}{t^2}$	$\frac{5-20t+28t^2-32t^3+28t^4-20t^5+5t^6}{t^3}$	True	2
8 ₇	$\frac{1-3t+5t^2-5t^3+5t^4-3t^5+t^6}{t^3}$	$-\frac{1-4t+10t^2-12t^3+13t^4-12t^5+13t^6-12t^7+10t^8-4t^9+t^{10}}{t^5}$	True	3
8 ₈	$\frac{(2-2t+t^2)(1-2t+2t^2)}{t^2}$	$-\frac{1-4t+12t^2-16t^3+12t^4-4t^5+t^6}{t^3}$	True	2
8 ₉	$-\frac{(-1+t-2t^2+t^3)(-1+2t-t^2+t^3)}{t^3}$	0	True	3
8 ₁₀	$\frac{(1-t+t^2)^3}{t^3}$	$-\frac{(1-t+t^2)^2(1+t+t^2)(1-3t+6t^2-3t^3+t^4)}{t^5}$	True	3
8 ₁₁	$-\frac{(-2+t)(-1+2t)(1-t+t^2)}{t^2}$	$\frac{5-24t+39t^2-44t^3+39t^4-24t^5+5t^6}{t^3}$	True	2
8 ₁₂	$\frac{1-7t+13t^2-7t^3+t^4}{t^2}$	0	True	2
8 ₁₃	$\frac{2-7t+11t^2-7t^3+2t^4}{t^2}$	$-\frac{1-4t+14t^2-20t^3+14t^4-4t^5+t^6}{t^3}$	True	2
8 ₁₄	$-\frac{2-8t+11t^2-8t^3+2t^4}{t^2}$	$\frac{(-1+t)^2(5-18t+16t^2-18t^3+5t^4)}{t^3}$	True	2
8 ₁₅	$\frac{(1-t+t^2)(3-5t+3t^2)}{t^2}$	$\frac{(3-4t+3t^2)(7-12t+17t^2-12t^3+7t^4)}{t^3}$	True	2
8 ₁₆	$\frac{1-4t+8t^2-9t^3+8t^4-4t^5+t^6}{t^3}$	$\frac{(1-t+t^2)(1-5t+11t^2-12t^3+12t^4-12t^5+11t^6-5t^7+t^8)}{t^5}$	True	3
8 ₁₇	$-\frac{1-4t+8t^2-11t^3+8t^4-4t^5+t^6}{t^3}$	0	True	3
8 ₁₈	$-\frac{(1-3t+t^2)(1-t+t^2)^2}{t^3}$	0	True	3
8 ₁₉	$\frac{(1-t+t^2)(1-t^2+t^4)}{t^3}$	$-\frac{(1+t^4)(3+4t^3+3t^6)}{t^5}$	False	3
8 ₂₀	$\frac{(1-t+t^2)^2}{t^2}$	$\frac{4(1-t+t^2)}{t}$	True	2
8 ₂₁	$-\frac{(1-3t+t^2)(1-t+t^2)}{t^2}$	$\frac{1-8t+16t^2-20t^3+16t^4-8t^5+t^6}{t^3}$	True	2

Table [{ K[[1]]K[[3]], Factor@za[K], Factor@ $\left(\frac{za[K] t^2 D[za[K], t] + t (t - 1) zp1[K]}{(t - 1)^2}\right)$,

2 Exponent[za[K], t, Min] == Exponent[zp1[K], t, Min] ^

2 Exponent[za[K], t, Max] == Exponent[t zp1[K], t, Max], ThreeGenus[K],

{K, {Knot[11, NonAlternating, 34], Knot[11, NonAlternating, 42], Knot[11, NonAlternating, 45],

Knot[11, NonAlternating, 67], Knot[11, NonAlternating, 73],

Knot[11, NonAlternating, 97], Knot[11, NonAlternating, 152]}}] // MatrixForm

11 ₃₄	1	$-\frac{2(1+t^4)}{t^2}$	False	3
11 ₄₂	1	$-\frac{2(1+t^4)}{t^2}$	False	2
11 ₄₅	$\frac{(2-2t+t^2)(1-2t+2t^2)}{t^2}$	$-\frac{(1-3t+t^2)(1-t+t^2)(3-4t+3t^2)}{t^3}$	True	3
11 ₆₇	$-\frac{(-2+t)(-1+2t)}{t}$	$\frac{(1-4t+t^2)(2-3t+2t^2)}{t^2}$	False	2
11 ₇₃	$\frac{(1-t+t^2)^2}{t^2}$	$\frac{4(1-t+t^2)^2}{t^2}$	True	3
11 ₉₇	$-\frac{(-2+t)(-1+2t)}{t}$	$-\frac{(1-4t+t^2)(2-t+2t^2)}{t^2}$	False	2
11 ₁₅₂	$-\frac{2-6t+7t^2-6t^3+2t^4}{t^2}$	$-\frac{7-28t+50t^2-60t^3+50t^4-28t^5+7t^6}{t^3}$	True	3

Table[{K[[1]K[[2]], ExpandNumerator@Together@za[K]^2,
ExpandNumerator@Together@(za[K] t D[za[K], t] + (t - 1) zp1[K]),
2 Exponent[za[K], t, Min] == Exponent[zp1[K], t, Min] ^ 2 Exponent[za[K], t, Max] ==
Exponent[t zp1[K], t, Max], ThreeGenus[K]}, {K, AllKnots[{3, 8}]}] // MatrixForm

3 ₁	$\frac{1-2t+3t^2-2t^3+t^4}{t^2}$	$\frac{1-2t+2t^2-2t^3+t^4}{t^2}$
4 ₁	$\frac{1-6t+11t^2-6t^3+t^4}{t^2}$	0
5 ₁	$\frac{1-2t+3t^2-4t^3+5t^4-4t^5+3t^6-2t^7+t^8}{t^4}$	$\frac{2-4t+5t^2-6t^3+6t^4-6t^5+5t^6-4t^7+2t^8}{t^4}$
5 ₂	$\frac{4-12t+17t^2-12t^3+4t^4}{t^2}$	$\frac{5-14t+18t^2-14t^3+5t^4}{t^2}$
6 ₁	$\frac{4-20t+33t^2-20t^3+4t^4}{t^2}$	$\frac{1-6t+10t^2-6t^3+t^4}{t^2}$
6 ₂	$\frac{1-6t+15t^2-24t^3+29t^4-24t^5+15t^6-6t^7+t^8}{t^4}$	$\frac{1-6t+13t^2-16t^3+16t^4-16t^5+13t^6-6t^7+t^8}{t^4}$
6 ₃	$\frac{1-6t+19t^2-36t^3+45t^4-36t^5+19t^6-6t^7+t^8}{t^4}$	0
7 ₁	$\frac{1-2t+3t^2-4t^3+5t^4-6t^5+7t^6-6t^7+5t^8-4t^9+3t^{10}-2t^{11}+t^{12}}{t^6}$	$\frac{3-6t+8t^2-10t^3+11t^4-12t^5+12t^6-12t^7+11t^8-10t^9+8t^{10}-6t^{11}+3t^{12}}{t^6}$
7 ₂	$\frac{9-30t+43t^2-30t^3+9t^4}{t^2}$	$\frac{14-44t+60t^2-44t^3+14t^4}{t^2}$
7 ₃	$\frac{4-12t+21t^2-30t^3+35t^4-30t^5+21t^6-12t^7+4t^8}{t^4}$	$\frac{-9+26t-41t^2+52t^3-56t^4+52t^5-41t^6+26t^7-9t^8}{t^4}$
7 ₄	$\frac{16-56t+81t^2-56t^3+16t^4}{t^2}$	$\frac{-24+80t-112t^2+80t^3-24t^4}{t^2}$
7 ₅	$\frac{4-16t+36t^2-56t^3+65t^4-56t^5+36t^6-16t^7+4t^8}{t^4}$	$\frac{9-34t+70t^2-102t^3+114t^4-102t^5+70t^6-34t^7+9t^8}{t^4}$
7 ₆	$\frac{1-10t+39t^2-80t^3+101t^4-80t^5+39t^6-10t^7+t^8}{t^4}$	$\frac{1-10t+36t^2-66t^3+78t^4-66t^5+36t^6-10t^7+t^8}{t^4}$
7 ₇	$\frac{1-10t+43t^2-100t^3+133t^4-100t^5+43t^6-10t^7+t^8}{t^4}$	$\frac{-3+14t-22t^2+14t^3-3t^4}{t^2}$
8 ₁	$\frac{9-42t+67t^2-42t^3+9t^4}{t^2}$	$\frac{5-26t+42t^2-26t^3+5t^4}{t^2}$
8 ₂	$\frac{1-6t+15t^2-24t^3+33t^4-42t^5+47t^6-42t^7+33t^8-24t^9+15t^{10}-6t^{11}+t^{12}}{t^6}$	$\frac{2-12t+28t^2-40t^3+47t^4-50t^5+50t^6-50t^7+47t^8-40t^9+28t^{10}-12t^{11}+2t^{12}}{t^6}$
8 ₃	$\frac{16-72t+113t^2-72t^3+16t^4}{t^2}$	0
8 ₄	$\frac{4-20t+45t^2-70t^3+83t^4-70t^5+45t^6-20t^7+4t^8}{t^4}$	$\frac{3-14t+25t^2-24t^3+20t^4-24t^5+25t^6-14t^7+3t^8}{t^4}$
8 ₅	$\frac{1-6t+17t^2-34t^3+54t^4-70t^5+77t^6-70t^7+54t^8-34t^9+17t^{10}-6t^{11}+t^{12}}{t^6}$	$\frac{-2+12t-31t^2+54t^3-75t^4+88t^5-92t^6+88t^7-75t^8+54t^9-31t^{10}+12t^{11}-2t^{12}}{t^6}$
8 ₆	$\frac{4-24t+64t^2-108t^3+129t^4-108t^5+64t^6-24t^7+4t^8}{t^4}$	$\frac{5-30t+73t^2-108t^3+120t^4-108t^5+73t^6-30t^7+5t^8}{t^4}$
8 ₇	$\frac{1-6t+19t^2-40t^3+65t^4-86t^5+95t^6-86t^7+65t^8-40t^9+19t^{10}-6t^{11}+t^{12}}{t^6}$	$\frac{-1+6t-19t^2+36t^3-47t^4+50t^5-50t^6+50t^7-47t^8+36t^9-19t^{10}+6t^{11}-t^{12}}{t^6}$
8 ₈	$\frac{4-24t+72t^2-132t^3+161t^4-132t^5+72t^6-24t^7+4t^8}{t^4}$	$\frac{-1+6t-21t^2+44t^3-56t^4+44t^5-21t^6+6t^7-t^8}{t^4}$
8 ₉	$\frac{1-6t+19t^2-44t^3+77t^4-106t^5+119t^6-106t^7+77t^8-44t^9+19t^{10}-6t^{11}+t^{12}}{t^6}$	0
8 ₁₀	$\frac{1-6t+21t^2-50t^3+90t^4-126t^5+141t^6-126t^7+90t^8-50t^9+21t^{10}-6t^{11}+t^{12}}{t^6}$	$\frac{-1+6t-20t^2+42t^3-64t^4+78t^5-82t^6+78t^7-64t^8+42t^9-20t^{10}+6t^{11}-t^{12}}{t^6}$
8 ₁₁	$\frac{4-28t+85t^2-154t^3+187t^4-154t^5+85t^6-28t^7+4t^8}{t^4}$	$\frac{5-34t+92t^2-146t^3+166t^4-146t^5+92t^6-34t^7+5t^8}{t^4}$
8 ₁₂	$\frac{1-14t+75t^2-196t^3+269t^4-196t^5+75t^6-14t^7+t^8}{t^4}$	0
8 ₁₃	$\frac{4-28t+93t^2-182t^3+227t^4-182t^5+93t^6-28t^7+4t^8}{t^4}$	$\frac{-1+6t-23t^2+52t^3-68t^4+52t^5-23t^6+6t^7-t^8}{t^4}$
8 ₁₄	$\frac{4-32t+108t^2-208t^3+257t^4-208t^5+108t^6-32t^7+4t^8}{t^4}$	$\frac{5-38t+118t^2-210t^3+250t^4-210t^5+118t^6-38t^7+5t^8}{t^4}$
8 ₁₅	$\frac{9-48t+130t^2-224t^3+267t^4-224t^5+130t^6-48t^7+9t^8}{t^4}$	$\frac{21-106t+269t^2-444t^3+520t^4-444t^5+269t^6-106t^7+21t^8}{t^4}$
8 ₁₆	$\frac{1-8t+32t^2-82t^3+152t^4-216t^5+243t^6-216t^7+152t^8-82t^9+32t^{10}-8t^{11}+t^{12}}{t^6}$	$\frac{1-8t+30t^2-68t^3+108t^4-134t^5+142t^6-134t^7+108t^8-68t^9+30t^{10}-8t^{11}+t^{12}}{t^6}$
8 ₁₇	$\frac{1-8t+32t^2-86t^3+168t^4-248t^5+283t^6-248t^7+168t^8-86t^9+32t^{10}-8t^{11}+t^{12}}{t^6}$	0
8 ₁₈	$\frac{1-10t+45t^2-126t^3+250t^4-370t^5+421t^6-370t^7+250t^8-126t^9+45t^{10}-10t^{11}+t^{12}}{t^6}$	0
8 ₁₉	$\frac{1-2t+t^2+2t^3-2t^4-2t^5+5t^6-2t^7-2t^8+2t^9+10t^{10}-2t^{11}+t^{12}}{t^6}$	$\frac{-3+6t-3t^2-4t^3+5t^4+2t^5-6t^6+2t^7+5t^8-4t^9-3t^{10}+6t^{11}-3t^{12}}{t^6}$
8 ₂₀	$\frac{1-4t+10t^2-16t^3+19t^4-16t^5+10t^6-4t^7+t^8}{t^4}$	$\frac{4-12t+16t^2-12t^3+4t^4}{t^2}$
8 ₂₁	$\frac{1-8t+26t^2-48t^3+59t^4-48t^5+26t^6-8t^7+t^8}{t^4}$	$\frac{1-10t+33t^2-60t^3+72t^4-60t^5+33t^6-10t^7+t^8}{t^4}$

Table[{za[K], K, Factor@ $\left(\frac{za[K] t^2 D[za[K], t] + t (t - 1) zp1[K]}{(t - 1)^2}\right)$ }, {K, AllKnots[{3, 10}]}] // Sort //

MatrixForm

$13 - \frac{6}{t} - 6t$	Knot[10, 3]	$\frac{11-28t+11t^2}{t}$
$9 - \frac{4}{t} - 4t$	Knot[8, 3]	0

$9 - \frac{4}{t} - 4t$	Knot [10, 1]	$\frac{4(-40t + t^2)}{t}$
$7 - \frac{3}{t} - 3t$	Knot [8, 1]	$\frac{5-16t+5t^2}{t}$
$5 - \frac{2}{t} - 2t$	Knot [6, 1]	$\frac{1-4t+t^2}{t}$
$5 - \frac{2}{t} - 2t$	Knot [9, 46]	$\frac{3(1-4t+t^2)}{t}$
$3 - \frac{1}{t} - t$	Knot [4, 1]	0
$-1 + \frac{1}{t} + t$	Knot [3, 1]	$\frac{1+t^2}{t}$
$-3 + \frac{2}{t} + 2t$	Knot [5, 2]	$\frac{5-4t+5t^2}{t}$
$-5 + \frac{3}{t} + 3t$	Knot [7, 2]	$\frac{2(7-8t+7t^2)}{t}$
$-7 + \frac{4}{t} + 4t$	Knot [7, 4]	$-\frac{8(3-4t+3t^2)}{t}$
$-7 + \frac{4}{t} + 4t$	Knot [9, 2]	$\frac{10(3-4t+3t^2)}{t}$
$-11 + \frac{6}{t} + 6t$	Knot [9, 5]	$-\frac{5(13-20t+13t^2)}{t}$
$-13 + \frac{7}{t} + 7t$	Knot [9, 35]	$\frac{18(5-8t+5t^2)}{t}$
$-33 - \frac{5}{t^2} + \frac{22}{t} + 22t - 5t^2$	Knot [10, 97]	$-\frac{37-242t+603t^2-788t^3+603t^4-242t^5+37t^6}{t^3}$
$-13 - \frac{4}{t^2} + \frac{11}{t} + 11t - 4t^2$	Knot [10, 11]	$\frac{4(4-13t+17t^2-18t^3+17t^4-13t^5+4t^6)}{t^3}$
$-15 - \frac{4}{t^2} + \frac{12}{t} + 12t - 4t^2$	Knot [10, 16]	$-\frac{4(4-14t+19t^2-20t^3+19t^4-14t^5+4t^6)}{t^3}$
$-19 - \frac{4}{t^2} + \frac{14}{t} + 14t - 4t^2$	Knot [10, 18]	$\frac{16-68t+121t^2-140t^3+121t^4-68t^5+16t^6}{t^3}$
$-19 - \frac{4}{t^2} + \frac{14}{t} + 14t - 4t^2$	Knot [10, 24]	$\frac{24-116t+221t^2-268t^3+221t^4-116t^5+24t^6}{t^3}$
$-21 - \frac{4}{t^2} + \frac{15}{t} + 15t - 4t^2$	Knot [10, 38]	$\frac{2(12-64t+135t^2-168t^3+135t^4-64t^5+12t^6)}{t^3}$
$-23 - \frac{4}{t^2} + \frac{16}{t} + 16t - 4t^2$	Knot [10, 67]	$\frac{4(-1+t)^2(6-23t+26t^2-23t^3+6t^4)}{t^3}$
$-23 - \frac{4}{t^2} + \frac{16}{t} + 16t - 4t^2$	Knot [10, 74]	$\frac{2(12-68t+145t^2-180t^3+145t^4-68t^5+12t^6)}{t^3}$
$-25 - \frac{4}{t^2} + \frac{17}{t} + 17t - 4t^2$	Knot [10, 30]	$\frac{24-148t+345t^2-440t^3+345t^4-148t^5+24t^6}{t^3}$
$-7 - \frac{3}{t^2} + \frac{7}{t} + 7t - 3t^2$	Knot [10, 4]	$\frac{4-8t+t^2+8t^3+t^4-8t^5+4t^6}{t^3}$
$-11 - \frac{3}{t^2} + \frac{9}{t} + 9t - 3t^2$	Knot [10, 20]	$\frac{2(7-28t+44t^2-52t^3+44t^4-28t^5+7t^6)}{t^3}$
$-11 - \frac{3}{t^2} + \frac{9}{t} + 9t - 3t^2$	Knot [10, 162]	$\frac{2(5-19t+29t^2-34t^3+29t^4-19t^5+5t^6)}{t^3}$
$-13 - \frac{3}{t^2} + \frac{10}{t} + 10t - 3t^2$	Knot [10, 144]	$\frac{2(5-22t+40t^2-48t^3+40t^4-22t^5+5t^6)}{t^3}$
$-15 - \frac{3}{t^2} + \frac{11}{t} + 11t - 3t^2$	Knot [10, 7]	$\frac{14-72t+135t^2-160t^3+135t^4-72t^5+14t^6}{t^3}$
$-17 - \frac{3}{t^2} + \frac{12}{t} + 12t - 3t^2$	Knot [9, 25]	$\frac{12-70t+153t^2-188t^3+153t^4-70t^5+12t^6}{t^3}$
$-19 - \frac{3}{t^2} + \frac{13}{t} + 13t - 3t^2$	Knot [10, 36]	$\frac{2(7-44t+104t^2-132t^3+104t^4-44t^5+7t^6)}{t^3}$
$-21 - \frac{3}{t^2} + \frac{14}{t} + 14t - 3t^2$	Knot [9, 39]	$-\frac{2(6-42t+105t^2-134t^3+105t^4-42t^5+6t^6)}{t^3}$
$-5 - \frac{2}{t^2} + \frac{5}{t} + 5t - 2t^2$	Knot [8, 4]	$\frac{3-8t+6t^2-4t^3+6t^4-8t^5+3t^6}{t^3}$
$-7 - \frac{2}{t^2} + \frac{6}{t} + 6t - 2t^2$	Knot [8, 6]	$\frac{5-20t+28t^2-32t^3+28t^4-20t^5+5t^6}{t^3}$
$-9 - \frac{2}{t^2} + \frac{7}{t} + 7t - 2t^2$	Knot [8, 11]	$\frac{5-24t+39t^2-44t^3+39t^4-24t^5+5t^6}{t^3}$
$-9 - \frac{2}{t^2} + \frac{7}{t} + 7t - 2t^2$	Knot [10, 147]	$-\frac{3(-1+t)^2(1-2t-2t^3+t^4)}{t^3}$
$-11 - \frac{2}{t^2} + \frac{8}{t} + 8t - 2t^2$	Knot [8, 14]	$\frac{(-1+t)^2(5-18t+16t^2-18t^3+5t^4)}{t^3}$
$-11 - \frac{2}{t^2} + \frac{8}{t} + 8t - 2t^2$	Knot [9, 8]	$\frac{3-16t+29t^2-28t^3+29t^4-16t^5+3t^6}{t^3}$
$-11 - \frac{2}{t^2} + \frac{8}{t} + 8t - 2t^2$	Knot [10, 131]	$\frac{5-38t+87t^2-112t^3+87t^4-38t^5+5t^6}{t^3}$
$-13 - \frac{2}{t^2} + \frac{9}{t} + 9t - 2t^2$	Knot [9, 12]	$\frac{5-36t+84t^2-100t^3+84t^4-36t^5+5t^6}{t^3}$
$-15 - \frac{2}{t^2} + \frac{10}{t} + 10t - 2t^2$	Knot [9, 15]	$-\frac{5-40t+108t^2-136t^3+108t^4-40t^5+5t^6}{t^3}$
$-15 - \frac{2}{t^2} + \frac{10}{t} + 10t - 2t^2$	Knot [10, 165]	$-\frac{5-50t+146t^2-196t^3+146t^4-50t^5+5t^6}{t^3}$
$-17 - \frac{2}{t^2} + \frac{11}{t} + 11t - 2t^2$	Knot [9, 21]	$-\frac{5-44t+127t^2-164t^3+127t^4-44t^5+5t^6}{t^3}$
$-1 - \frac{1}{t^2} + \frac{2}{t} + 2t - t^2$	Knot [9, 42]	$-\frac{(-1+t)^4(1+t)^2}{t^3}$
$-3 - \frac{1}{t^2} + \frac{3}{t} + 3t - t^2$	Knot [6, 2]	$\frac{1-4t+4t^2-4t^3+4t^4-4t^5+t^6}{t^3}$
$-5 - \frac{1}{t^2} + \frac{4}{t} + 4t - t^2$	Knot [8, 21]	$\frac{1-8t+16t^2-20t^3+16t^4-8t^5+t^6}{t^3}$
$-5 - \frac{1}{t^2} + \frac{4}{t} + 4t - t^2$	Knot [10, 136]	$-\frac{(1-3t+t^2)(1-t-2t^2-t^3+t^4)}{t^3}$

$-7 - \frac{1}{t^2} + \frac{5}{t} + 5t - t^2$	Knot [7, 6]	$\frac{t^3}{t^3} \frac{1-8t+19t^2-20t^3+19t^4-8t^5+t^6}{t^3}$
$-7 - \frac{1}{t^2} + \frac{5}{t} + 5t - t^2$	Knot [10, 133]	$\frac{(-1+t)^2 (1-12t+12t^2-12t^3+t^4)}{t^3}$
$-9 - \frac{1}{t^2} + \frac{6}{t} + 6t - t^2$	Knot [9, 45]	$\frac{1-14t+47t^2-60t^3+47t^4-14t^5+t^6}{t^3}$
$-11 - \frac{1}{t^2} + \frac{7}{t} + 7t - t^2$	Knot [9, 48]	$-\frac{(1-7t+t^2)(1-4t+t^2)(1-t+t^2)}{t^3}$
$13 + \frac{1}{t^2} - \frac{7}{t} - 7t + t^2$	Knot [8, 12]	0
$11 + \frac{1}{t^2} - \frac{6}{t} - 6t + t^2$	Knot [10, 137]	$-\frac{4(1-3t+t^2)^2}{t^2}$
$9 + \frac{1}{t^2} - \frac{5}{t} - 5t + t^2$	Knot [7, 7]	$-\frac{3-8t+3t^2}{t}$
$7 + \frac{1}{t^2} - \frac{4}{t} - 4t + t^2$	Knot [9, 44]	$-\frac{2-9t+12t^2-9t^3+2t^4}{t^2}$
$5 + \frac{1}{t^2} - \frac{3}{t} - 3t + t^2$	Knot [6, 3]	0
$3 + \frac{1}{t^2} - \frac{2}{t} - 2t + t^2$	Knot [8, 20]	$\frac{4(1-t+t^2)}{t}$
$3 + \frac{1}{t^2} - \frac{2}{t} - 2t + t^2$	Knot [10, 140]	$\frac{8(1-t+t^2)}{t}$
$1 + \frac{1}{t^2} - \frac{1}{t} - t + t^2$	Knot [5, 1]	$\frac{(1+t^2)(2+t^2+2t^4)}{t^3}$
$1 + \frac{1}{t^2} - \frac{1}{t} - t + t^2$	Knot [10, 132]	$\frac{2+5t-4t^2+5t^3+2t^4}{t^2}$
$-3 + \frac{1}{t^2} + \frac{1}{t} + t + t^2$	Knot [10, 145]	$\frac{2(1+4t+3t^2-4t^3+3t^4+4t^5+t^6)}{t^3}$
$23 + \frac{2}{t^2} - \frac{13}{t} - 13t + 2t^2$	Knot [10, 13]	$\frac{1-12t+51t^2-84t^3+51t^4-12t^5+t^6}{t^3}$
$21 + \frac{2}{t^2} - \frac{12}{t} - 12t + 2t^2$	Knot [10, 35]	$-\frac{(-1+5t-7t^2+t^3)(-1+7t-5t^2+t^3)}{t^3}$
$19 + \frac{2}{t^2} - \frac{11}{t} - 11t + 2t^2$	Knot [9, 37]	$\frac{(1-4t+t^2)(1-3t+t^2)(1-t+t^2)}{t^3}$
$17 + \frac{2}{t^2} - \frac{10}{t} - 10t + 2t^2$	Knot [9, 19]	$\frac{1-8t+20t^2-24t^3+20t^4-8t^5+t^6}{t^3}$
$15 + \frac{2}{t^2} - \frac{9}{t} - 9t + 2t^2$	Knot [9, 14]	$-\frac{1-8t+35t^2-60t^3+35t^4-8t^5+t^6}{t^3}$
$13 + \frac{2}{t^2} - \frac{8}{t} - 8t + 2t^2$	Knot [10, 146]	$\frac{(-1+t)^2(1-6t+8t^2-6t^3+t^4)}{t^3}$
$11 + \frac{2}{t^2} - \frac{7}{t} - 7t + 2t^2$	Knot [8, 13]	$-\frac{1-4t+14t^2-20t^3+14t^4-4t^5+t^6}{t^3}$
$9 + \frac{2}{t^2} - \frac{6}{t} - 6t + 2t^2$	Knot [8, 8]	$-\frac{1-4t+12t^2-16t^3+12t^4-4t^5+t^6}{t^3}$
$9 + \frac{2}{t^2} - \frac{6}{t} - 6t + 2t^2$	Knot [10, 129]	$-\frac{1+2t-14t^2+20t^3-14t^4+2t^5+t^6}{t^3}$
$5 + \frac{2}{t^2} - \frac{4}{t} - 4t + 2t^2$	Knot [7, 5]	$\frac{9-16t+29t^2-28t^3+29t^4-16t^5+9t^6}{t^3}$
$5 + \frac{2}{t^2} - \frac{4}{t} - 4t + 2t^2$	Knot [10, 130]	$\frac{1-2t+19t^2-24t^3+19t^4-2t^5+t^6}{t^3}$
$3 + \frac{2}{t^2} - \frac{3}{t} - 3t + 2t^2$	Knot [7, 3]	$-\frac{9-8t+16t^2-12t^3+16t^4-8t^5+9t^6}{t^3}$
$27 + \frac{3}{t^2} - \frac{16}{t} - 16t + 3t^2$	Knot [10, 58]	$\frac{(1-4t+t^2)(1-3t+t^2)(3-7t+3t^2)}{t^3}$
$19 + \frac{3}{t^2} - \frac{12}{t} - 12t + 3t^2$	Knot [9, 41]	$\frac{3-20t+70t^2-108t^3+70t^4-20t^5+3t^6}{t^3}$
$17 + \frac{3}{t^2} - \frac{11}{t} - 11t + 3t^2$	Knot [10, 10]	$-\frac{5-24t+71t^2-100t^3+71t^4-24t^5+5t^6}{t^3}$
$17 + \frac{3}{t^2} - \frac{11}{t} - 11t + 3t^2$	Knot [10, 164]	$\frac{(-1+t)^2(1-8t+12t^2-8t^3+t^4)}{t^3}$
$13 + \frac{3}{t^2} - \frac{9}{t} - 9t + 3t^2$	Knot [10, 34]	$-\frac{5-20t+52t^2-68t^3+52t^4-20t^5+5t^6}{t^3}$
$13 + \frac{3}{t^2} - \frac{9}{t} - 9t + 3t^2$	Knot [10, 135]	$\frac{1-6t+18t^2-24t^3+18t^4-6t^5+t^6}{t^3}$
$11 + \frac{3}{t^2} - \frac{8}{t} - 8t + 3t^2$	Knot [8, 15]	$\frac{(3-4t+3t^2)(7-12t+17t^2-12t^3+7t^4)}{t^3}$
$9 + \frac{3}{t^2} - \frac{7}{t} - 7t + 3t^2$	Knot [9, 7]	$\frac{23-56t+99t^2-108t^3+99t^4-56t^5+23t^6}{t^3}$
$7 + \frac{3}{t^2} - \frac{6}{t} - 6t + 3t^2$	Knot [9, 49]	$-\frac{21-38t+61t^2-60t^3+61t^4-38t^5+21t^6}{t^3}$
$5 + \frac{3}{t^2} - \frac{5}{t} - 5t + 3t^2$	Knot [9, 4]	$\frac{23-28t+46t^2-44t^3+46t^4-28t^5+23t^6}{t^3}$
$25 + \frac{4}{t^2} - \frac{16}{t} - 16t + 4t^2$	Knot [10, 33]	0
$21 + \frac{4}{t^2} - \frac{14}{t} - 14t + 4t^2$	Knot [10, 31]	$-\frac{4-9t+12t^2-9t^3+4t^4}{t^2}$
$21 + \frac{4}{t^2} - \frac{14}{t} - 14t + 4t^2$	Knot [10, 68]	$\frac{8-40t+117t^2-164t^3+117t^4-40t^5+8t^6}{t^3}$
$19 + \frac{4}{t^2} - \frac{13}{t} - 13t + 4t^2$	Knot [10, 28]	$-\frac{4(2-9t+25t^2-34t^3+25t^4-9t^5+2t^6)}{t^3}$
$19 + \frac{4}{t^2} - \frac{13}{t} - 13t + 4t^2$	Knot [10, 37]	0
$15 + \frac{4}{t^2} - \frac{11}{t} - 11t + 4t^2$	Knot [9, 23]	$\frac{40-128t+243t^2-288t^3+243t^4-128t^5+40t^6}{t^3}$
$13 + \frac{4}{t^2} - \frac{10}{t} - 10t + 4t^2$	Knot [9, 18]	$\frac{40-108t+193t^2-220t^3+193t^4-108t^5+40t^6}{t^3}$
		$\frac{2(20-46t+77t^2-84t^3+77t^4-46t^5+20t^6)}{t^3}$

$11 + \frac{4}{t^2} - \frac{8}{t} - 9t + 4t^4$	Knot [9, 13]	$-\frac{4(20-7t+7t^2-9t^3+4t^4)}{t^3}$
$9 + \frac{4}{t^2} - \frac{8}{t} - 8t + 4t^2$	Knot [9, 10]	$-\frac{2(20-36t+57t^2-60t^3+57t^4-36t^5+20t^6)}{t^3}$
$21 + \frac{5}{t^2} - \frac{15}{t} - 15t + 5t^2$	Knot [10, 55]	$\frac{2(33-123t+244t^2-298t^3+244t^4-123t^5+33t^6)}{t^3}$
$19 + \frac{5}{t^2} - \frac{14}{t} - 14t + 5t^2$	Knot [9, 38]	$\frac{2(31-102t+191t^2-226t^3+191t^4-102t^5+31t^6)}{t^3}$
$19 + \frac{5}{t^2} - \frac{14}{t} - 14t + 5t^2$	Knot [10, 63]	$\frac{2(3-4t+3t^2)(11-22t+29t^2-22t^3+11t^4)}{t^3}$
$25 + \frac{6}{t^2} - \frac{18}{t} - 18t + 6t^2$	Knot [10, 53]	$\frac{93-346t+680t^2-828t^3+680t^4-346t^5+93t^6}{t^3}$
$29 + \frac{7}{t^2} - \frac{21}{t} - 21t + 7t^2$	Knot [10, 101]	$-\frac{129-480t+942t^2-1148t^3+942t^4-480t^5+129t^6}{t^3}$
$37 + \frac{8}{t^2} - \frac{26}{t} - 26t + 8t^2$	Knot [10, 120]	$\frac{166-692t+1433t^2-1788t^3+1433t^4-692t^5+166t^6}{t^3}$
$7 - \frac{2}{t^3} + \frac{5}{t^2} - \frac{6}{t} - 6t + 5t^2 - 2t^3$	Knot [10, 61]	$-\frac{7-20t+27t^2-36t^3+35t^4-36t^5+35t^6-36t^7+27t^8-20t^9+7t^{10}}{t^5}$
$5 - \frac{2}{t^3} + \frac{5}{t^2} - \frac{5}{t} - 5t + 5t^2 - 2t^3$	Knot [10, 8]	$\frac{7-20t+23t^2-28t^3+26t^4-24t^5+26t^6-28t^7+23t^8-20t^9+7t^{10}}{t^5}$
$13 - \frac{2}{t^3} + \frac{6}{t^2} - \frac{10}{t} - 10t + 6t^2 - 2t^3$	Knot [10, 22]	$-\frac{1-4t+10t^2-24t^3+37t^4-44t^5+37t^6-24t^7+10t^8-4t^9+t^{10}}{t^5}$
$7 - \frac{2}{t^3} + \frac{6}{t^2} - \frac{7}{t} - 7t + 6t^2 - 2t^3$	Knot [10, 6]	$\frac{9-36t+56t^2-72t^3+81t^4-84t^5+81t^6-72t^7+56t^8-36t^9+9t^{10}}{t^5}$
$17 - \frac{2}{t^3} + \frac{7}{t^2} - \frac{13}{t} - 13t + 7t^2 - 2t^3$	Knot [10, 26]	$-\frac{1-4t+10t^2-28t^3+49t^4-60t^5+49t^6-28t^7+10t^8-4t^9+t^{10}}{t^5}$
$15 - \frac{2}{t^3} + \frac{7}{t^2} - \frac{12}{t} - 12t + 7t^2 - 2t^3$	Knot [10, 76]	$-\frac{9-44t+104t^2-184t^3+245t^4-272t^5+245t^6-184t^7+104t^8-44t^9+9t^{10}}{t^5}$
$13 - \frac{2}{t^3} + \frac{7}{t^2} - \frac{11}{t} - 11t + 7t^2 - 2t^3$	Knot [10, 50]	$-\frac{9-44t+94t^2-150t^3+186t^4-200t^5+186t^6-150t^7+94t^8-44t^9+9t^{10}}{t^5}$
$9 - \frac{2}{t^3} + \frac{7}{t^2} - \frac{9}{t} - 9t + 7t^2 - 2t^3$	Knot [10, 21]	$\frac{(-1+t)^2(9-26t+19t^2-40t^3+22t^4-40t^5+19t^6-26t^7+9t^8)}{t^5}$
$23 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{17}{t} - 17t + 8t^2 - 2t^3$	Knot [10, 90]	$-\frac{(1-t+t^2)(1-5t+15t^2-34t^3+44t^4-34t^5+15t^6-5t^7+t^8)}{t^5}$
$21 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{16}{t} - 16t + 8t^2 - 2t^3$	Knot [10, 102]	$-\frac{(1-t+t^2)(1-5t+13t^2-32t^3+44t^4-32t^5+13t^6-5t^7+t^8)}{t^5}$
$19 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{15}{t} - 15t + 8t^2 - 2t^3$	Knot [10, 32]	$\frac{(-1+t)^2(1-2t+8t^2-22t^3+26t^4-22t^5+8t^6-2t^7+t^8)}{t^5}$
$17 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{14}{t} - 14t + 8t^2 - 2t^3$	Knot [10, 25]	$\frac{9-52t+131t^2-232t^3+314t^4-344t^5+314t^6-232t^7+131t^8-52t^9+9t^{10}}{t^5}$
$17 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{14}{t} - 14t + 8t^2 - 2t^3$	Knot [10, 56]	$-\frac{9-52t+133t^2-234t^3+312t^4-340t^5+312t^6-234t^7+133t^8-52t^9+9t^{10}}{t^5}$
$15 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{13}{t} - 13t + 8t^2 - 2t^3$	Knot [10, 39]	$\frac{9-52t+125t^2-204t^3+263t^4-280t^5+263t^6-204t^7+125t^8-52t^9+9t^{10}}{t^5}$
$13 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{12}{t} - 12t + 8t^2 - 2t^3$	Knot [10, 14]	$\frac{(1+t+t^2)(9-61t+171t^2-290t^3+344t^4-290t^5+171t^6-61t^7+9t^8)}{t^5}$
$25 - \frac{2}{t^3} + \frac{9}{t^2} - \frac{19}{t} - 19t + 9t^2 - 2t^3$	Knot [10, 86]	$-\frac{(1-3t+t^2)(1-t+t^2)(1-2t+8t^2-12t^3+8t^4-2t^5+t^6)}{t^5}$
$23 - \frac{2}{t^3} + \frac{9}{t^2} - \frac{18}{t} - 18t + 9t^2 - 2t^3$	Knot [10, 87]	$-\frac{(1-t+t^2)(1-5t+17t^2-44t^3+64t^4-44t^5+17t^6-5t^7+t^8)}{t^5}$
$23 - \frac{2}{t^3} + \frac{9}{t^2} - \frac{18}{t} - 18t + 9t^2 - 2t^3$	Knot [10, 98]	$\frac{3(1-t+t^2)^2(3-14t+22t^2-24t^3+22t^4-14t^5+3t^6)}{t^5}$
$21 - \frac{2}{t^3} + \frac{9}{t^2} - \frac{17}{t} - 17t + 9t^2 - 2t^3$	Knot [10, 111]	$-\frac{(-1+t)^2(3-12t+14t^2-12t^3+3t^4)(3-2t+4t^2-2t^3+3t^4)}{t^5}$
$19 - \frac{2}{t^3} + \frac{9}{t^2} - \frac{16}{t} - 16t + 9t^2 - 2t^3$	Knot [10, 72]	$-\frac{9-60t+167t^2-298t^3+410t^4-448t^5+410t^6-298t^7+167t^8-60t^9+9t^{10}}{t^5}$
$31 - \frac{2}{t^3} + \frac{10}{t^2} - \frac{23}{t} - 23t + 10t^2 - 2t^3$	Knot [10, 119]	$-\frac{(-1+t)^2(1-4t+17t^2-48t^3+62t^4-48t^5+17t^6-4t^7+t^8)}{t^5}$
$27 - \frac{2}{t^3} + \frac{10}{t^2} - \frac{21}{t} - 21t + 10t^2 - 2t^3$	Knot [10, 114]	$\frac{1-8t+30t^2-78t^3+140t^4-168t^5+140t^6-78t^7+30t^8-8t^9+t^{10}}{t^5}$
$25 - \frac{2}{t^3} + \frac{10}{t^2} - \frac{20}{t} - 20t + 10t^2 - 2t^3$	Knot [10, 92]	$-\frac{9-68t+216t^2-428t^3+622t^4-696t^5+622t^6-428t^7+216t^8-68t^9+9t^{10}}{t^5}$
$31 - \frac{2}{t^3} + \frac{11}{t^2} - \frac{24}{t} - 24t + 11t^2 - 2t^3$	Knot [10, 122]	$-\frac{(1-3t+t^2)(1-5t+18t^2-45t^3+58t^4-45t^5+18t^6-5t^7+t^8)}{t^5}$
$7 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{5}{t} - 5t + 3t^2 - t^3$	Knot [8, 9]	0
$7 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{5}{t} - 5t + 3t^2 - t^3$	Knot [10, 155]	$-\frac{2(1-6t+11t^2-14t^3+11t^4-6t^5+t^6)}{t^3}$
$5 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{4}{t} - 4t + 3t^2 - t^3$	Knot [8, 5]	$-\frac{(1+t^2)(2-8t+11t^2-12t^3+11t^4-12t^5+11t^6-8t^7+2t^8)}{t^5}$
$5 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{4}{t} - 4t + 3t^2 - t^3$	Knot [10, 141]	$\frac{1-8t+16t^2-20t^3+16t^4-8t^5+t^6}{t^3}$
$3 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{3}{t} - 3t + 3t^2 - t^3$	Knot [8, 2]	$\frac{2-8t+10t^2-12t^3+13t^4-12t^5+13t^6-12t^7+10t^8-8t^9+2t^{10}}{t^5}$
$1 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{2}{t} - 2t + 3t^2 - t^3$	Knot [9, 43]	$-\frac{2-8t+7t^2-2t^3+5t^4-4t^5+5t^6-2t^7+7t^8-8t^9+2t^{10}}{t^5}$
$15 - \frac{1}{t^3} + \frac{4}{t^2} - \frac{10}{t} - 10t + 4t^2 - t^3$	Knot [10, 158]	$\frac{2-7t+12t^2-7t^3+2t^4}{t^2}$
$11 - \frac{1}{t^3} + \frac{4}{t^2} - \frac{8}{t} - 8t + 4t^2 - t^3$	Knot [8, 17]	0
$7 - \frac{1}{t^3} + \frac{4}{t^2} - \frac{6}{t} - 6t + 4t^2 - t^3$	Knot [10, 127]	$\frac{2-14t+32t^2-52t^3+67t^4-72t^5+67t^6-52t^7+32t^8-14t^9+2t^{10}}{t^5}$
$7 - \frac{1}{t^3} + \frac{4}{t^2} - \frac{6}{t} - 6t + 4t^2 - t^3$	Knot [10, 150]	$-\frac{2-12t+26t^2-38t^3+45t^4-44t^5+45t^6-38t^7+26t^8-12t^9+2t^{10}}{t^5}$
$3 - \frac{1}{t^3} + \frac{4}{t^2} - \frac{4}{t} - 4t + 4t^2 - t^3$	Knot [10, 160]	$-\frac{2(1-t-2t^2-t^3+t^4)(1-5t+7t^2-9t^3+7t^4-5t^5+t^6)}{t^5}$
$17 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{12}{t} - 12t + 5t^2 - t^3$	Knot [9, 30]	$\frac{2-10t+25t^2-32t^3+25t^4-10t^5+2t^6}{t^3}$

$15 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{11}{t} - 11t + 5t^2 - t^3$	Knot [9, 27]	$\frac{-8t+24t^2-32t^3+24t^4-8t^5+t^6}{t^3}$
$13 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{10}{t} - 10t + 5t^2 - t^3$	Knot [8, 18]	0
$13 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{10}{t} - 10t + 5t^2 - t^3$	Knot [9, 24]	$-\frac{4(1-3t+t^2)(1-t+t^2)}{t^2}$
$11 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{9}{t} - 9t + 5t^2 - t^3$	Knot [9, 20]	$\frac{2-16t+47t^2-84t^3+117t^4-124t^5+117t^6-84t^7+47t^8-16t^9+2t^{10}}{t^5}$
$11 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{9}{t} - 9t + 5t^2 - t^3$	Knot [10, 149]	$\frac{2-18t+55t^2-104t^3+149t^4-164t^5+149t^6-104t^7+55t^8-18t^9+2t^{10}}{t^5}$
$9 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{8}{t} - 8t + 5t^2 - t^3$	Knot [9, 36]	$-\frac{2-16t+44t^2-66t^3+87t^4-88t^5+87t^6-66t^7+44t^8-16t^9+2t^{10}}{t^5}$
$7 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{7}{t} - 7t + 5t^2 - t^3$	Knot [9, 11]	$-\frac{2-16t+41t^2-52t^3+66t^4-64t^5+66t^6-52t^7+41t^8-16t^9+2t^{10}}{t^5}$
$23 - \frac{1}{t^3} + \frac{6}{t^2} - \frac{16}{t} - 16t + 6t^2 - t^3$	Knot [9, 34]	$\frac{(-1+t)^2(3-12t+16t^2-12t^3+3t^4)}{t^3}$
$19 - \frac{1}{t^3} + \frac{6}{t^2} - \frac{14}{t} - 14t + 6t^2 - t^3$	Knot [9, 33]	$\frac{1-10t+30t^2-40t^3+30t^4-10t^5+t^6}{t^3}$
$13 - \frac{1}{t^3} + \frac{6}{t^2} - \frac{11}{t} - 11t + 6t^2 - t^3$	Knot [10, 157]	$-\frac{2(1-11t+39t^2-74t^3+109t^4-120t^5+109t^6-74t^7+39t^8-11t^9+t^{10})}{t^5}$
$33 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{22}{t} - 22t + 7t^2 - t^3$	Knot [10, 96]	$-\frac{7-50t+147t^2-212t^3+147t^4-50t^5+7t^6}{t^3}$
$31 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{21}{t} - 21t + 7t^2 - t^3$	Knot [10, 45]	0
$29 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{20}{t} - 20t + 7t^2 - t^3$	Knot [10, 60]	$\frac{(1-3t+t^2)(5-25t+42t^2-25t^3+5t^4)}{t^3}$
$27 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{19}{t} - 19t + 7t^2 - t^3$	Knot [10, 42]	$\frac{2-8t+11t^2-12t^3+11t^4-8t^5+2t^6}{t^3}$
$27 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{19}{t} - 19t + 7t^2 - t^3$	Knot [10, 75]	$-\frac{(-2+t)^2(-1+2t)^2(1-4t+t^2)}{t^3}$
$25 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{18}{t} - 18t + 7t^2 - t^3$	Knot [10, 71]	$\frac{(-1+t)^4(1+t)^2}{t^3}$
$23 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{17}{t} - 17t + 7t^2 - t^3$	Knot [10, 43]	0
$21 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{16}{t} - 16t + 7t^2 - t^3$	Knot [10, 78]	$\frac{2-24t+105t^2-244t^3+390t^4-448t^5+390t^6-244t^7+105t^8-24t^9+2t^{10}}{t^5}$
$35 - \frac{1}{t^3} + \frac{8}{t^2} - \frac{24}{t} - 24t + 8t^2 - t^3$	Knot [10, 88]	0
$31 - \frac{1}{t^3} + \frac{8}{t^2} - \frac{22}{t} - 22t + 8t^2 - t^3$	Knot [10, 107]	$\frac{(1+t^2)(2-8t+11t^2-8t^3+2t^4)}{t^3}$
$27 - \frac{1}{t^3} + \frac{8}{t^2} - \frac{20}{t} - 20t + 8t^2 - t^3$	Knot [10, 81]	0
$37 - \frac{1}{t^3} + \frac{9}{t^2} - \frac{26}{t} - 26t + 9t^2 - t^3$	Knot [10, 115]	0
$7 + \frac{1}{t^3} - \frac{4}{t} - 4t + t^3$	Knot [10, 154]	$-\frac{3+6t-13t^2+47t^4-68t^5+47t^6-13t^8+6t^9+3t^{10}}{t^5}$
$3 + \frac{1}{t^3} - \frac{2}{t} - 2t + t^3$	Knot [10, 161]	$\frac{3+6t-3t^2+4t^3+14t^4-12t^5+14t^6+4t^7-3t^8+6t^9+3t^{10}}{t^5}$
$-25 + \frac{1}{t^3} - \frac{8}{t^2} + \frac{20}{t} + 20t - 8t^2 + t^3$	Knot [10, 110]	$\frac{1-14t+69t^2-160t^3+219t^4-236t^5+219t^6-160t^7+69t^8-14t^9+t^{10}}{t^5}$
$-29 + \frac{1}{t^3} - \frac{8}{t^2} + \frac{22}{t} + 22t - 8t^2 + t^3$	Knot [10, 105]	$-\frac{(-1+t)^2(1-12t+46t^2-80t^3+86t^4-80t^5+46t^6-12t^7+t^8)}{t^5}$
$-33 + \frac{1}{t^3} - \frac{8}{t^2} + \frac{24}{t} + 24t - 8t^2 + t^3$	Knot [10, 89]	$\frac{(1-3t+t^2)(1-11t+49t^2-106t^3+128t^4-106t^5+49t^6-11t^7+t^8)}{t^5}$
$-17 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{15}{t} + 15t - 7t^2 + t^3$	Knot [10, 29]	$\frac{1-12t+52t^2-104t^3+124t^4-128t^5+124t^6-104t^7+52t^8-12t^9+t^{10}}{t^5}$
$-19 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{16}{t} + 16t - 7t^2 + t^3$	Knot [10, 70]	$-\frac{(1-2t-2t^3+t^4)(1-10t+33t^2-46t^3+33t^4-10t^5+t^6)}{t^5}$
$-21 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{17}{t} + 17t - 7t^2 + t^3$	Knot [10, 41]	$\frac{1-12t+54t^2-120t^3+157t^4-164t^5+157t^6-120t^7+54t^8-12t^9+t^{10}}{t^5}$
$-23 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{18}{t} + 18t - 7t^2 + t^3$	Knot [9, 40]	$\frac{(1+t^2)(1-3t+t^2)^2(1-6t+9t^2-6t^3+t^4)}{t^5}$
$-23 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{18}{t} + 18t - 7t^2 + t^3$	Knot [10, 59]	$-\frac{(1-3t+t^2)^2(1-6t+8t^2-8t^3+8t^4-6t^5+t^6)}{t^5}$
$-25 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{19}{t} + 19t - 7t^2 + t^3$	Knot [10, 44]	$\frac{1-12t+56t^2-140t^3+220t^4-248t^5+220t^6-140t^7+56t^8-12t^9+t^{10}}{t^5}$
$-27 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{20}{t} + 20t - 7t^2 + t^3$	Knot [10, 73]	$\frac{1-12t+65t^2-194t^3+350t^4-416t^5+350t^6-194t^7+65t^8-12t^9+t^{10}}{t^5}$
$-29 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{21}{t} + 21t - 7t^2 + t^3$	Knot [10, 69]	$-\frac{1-12t+68t^2-212t^3+397t^4-476t^5+397t^6-212t^7+68t^8-12t^9+t^{10}}{t^5}$
$-17 + \frac{1}{t^3} - \frac{6}{t^2} + \frac{14}{t} + 14t - 6t^2 + t^3$	Knot [9, 32]	$-\frac{1-10t+42t^2-94t^3+133t^4-148t^5+133t^6-94t^7+42t^8-10t^9+t^{10}}{t^5}$
$-7 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{8}{t} + 8t - 5t^2 + t^3$	Knot [10, 138]	$-\frac{(1-3t+t^2)(1-4t+4t^2-4t^3+t^4)(1-t-2t^2-t^3+t^4)}{t^5}$
$-9 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{9}{t} + 9t - 5t^2 + t^3$	Knot [9, 17]	$\frac{(-1+t)^2(1-6t+10t^2-6t^3+6t^4-6t^5+10t^6-6t^7+t^8)}{t^5}$
$-11 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{10}{t} + 10t - 5t^2 + t^3$	Knot [9, 22]	$-\frac{1-8t+24t^2-38t^3+40t^4-36t^5+40t^6-38t^7+24t^8-8t^9+t^{10}}{t^5}$
$-13 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{11}{t} + 11t - 5t^2 + t^3$	Knot [9, 26]	$-\frac{1-8t+31t^2-64t^3+85t^4-92t^5+85t^6-64t^7+31t^8-8t^9+t^{10}}{t^5}$
$-15 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{12}{t} + 12t - 5t^2 + t^3$	Knot [9, 28]	$\frac{(-1+t)^4(1+t^2)(1-4t+7t^2-4t^3+t^4)}{t^5}$
$-15 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{12}{t} + 12t - 5t^2 + t^3$	Knot [9, 29]	$\frac{(1-3t+t^2)(1-5t+10t^2-13t^3+10t^4-13t^5+10t^6-5t^7+t^8)}{t^5}$
$-15 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{12}{t} + 12t - 5t^2 + t^3$	Knot [10, 163]	$-\frac{1-8t+30t^2-62t^3+89t^4-96t^5+89t^6-62t^7+30t^8-8t^9+t^{10}}{t^5}$
$17 - \frac{1}{t^3} - \frac{5}{t^2} + \frac{13}{t} + 13t - 5t^2 + t^3$	Knot [9, 211]	$\frac{1-8t+33t^2-80t^3+132t^4-152t^5+132t^6-80t^7+33t^8-8t^9+t^{10}}{t^5}$

$-17 + \frac{1}{t^3} - \frac{4}{t^2} + \frac{6}{t} + 6t - 4t^2 + t^3$	Knot [9, 51]	t^5
$-9 + \frac{1}{t^3} - \frac{4}{t^2} + \frac{8}{t} + 8t - 4t^2 + t^3$	Knot [8, 16]	$-1-6t+15t^2-16t^3+10t^4-12t^5+10t^6-16t^7+15t^8-6t^9+t^{10}$
$-9 + \frac{1}{t^3} - \frac{4}{t^2} + \frac{8}{t} + 8t - 4t^2 + t^3$	Knot [10, 156]	$\frac{(1-t+t^2)(1-5t+11t^2-12t^3+12t^4-12t^5+11t^6-5t^7+t^8)}{t^5}$
$-11 + \frac{1}{t^3} - \frac{4}{t^2} + \frac{9}{t} + 9t - 4t^2 + t^3$	Knot [10, 159]	$\frac{(1-t+t^2)(1-5t+13t^2-12t^3+8t^4-12t^5+13t^6-5t^7+t^8)}{t^5}$
$-13 + \frac{1}{t^3} - \frac{4}{t^2} + \frac{10}{t} + 10t - 4t^2 + t^3$	Knot [10, 151]	$1-6t+26t^2-60t^3+98t^4-112t^5+98t^6-60t^7+26t^8-6t^9+t^{10}$
$-5 + \frac{1}{t^3} - \frac{3}{t^2} + \frac{5}{t} + 5t - 3t^2 + t^3$	Knot [8, 7]	$-(1+t^2)(1-6t+20t^2-36t^3+46t^4-36t^5+20t^6-6t^7+t^8)$
$-7 + \frac{1}{t^3} - \frac{3}{t^2} + \frac{6}{t} + 6t - 3t^2 + t^3$	Knot [8, 10]	$-(1+t^2)^2(1+t+t^2)\frac{(1-3t+6t^2-3t^3+t^4)}{t^5}$
$-7 + \frac{1}{t^3} - \frac{3}{t^2} + \frac{6}{t} + 6t - 3t^2 + t^3$	Knot [10, 143]	$\frac{(1+t^2)(1-t+t^2)^2(1-2t+7t^2-2t^3+t^4)}{t^5}$
$-9 + \frac{1}{t^3} - \frac{3}{t^2} + \frac{7}{t} + 7t - 3t^2 + t^3$	Knot [10, 148]	$1-4t+18t^2-36t^3+62t^4-68t^5+62t^6-36t^7+18t^8-4t^9+t^{10}$
$-1 + \frac{1}{t^3} - \frac{2}{t^2} + \frac{2}{t} + 2t - 2t^2 + t^3$	Knot [10, 125]	$-(1+t)^2(1+t)^2\frac{(1+t^2)(1-t+t^2)^2}{t^5}$
$-5 + \frac{1}{t^3} - \frac{2}{t^2} + \frac{4}{t} + 4t - 2t^2 + t^3$	Knot [10, 126]	$(1+t^2)\frac{(1-2t+9t^2-10t^3+13t^4-10t^5+9t^6-2t^7+t^8)}{t^5}$
$1 + \frac{1}{t^3} - \frac{1}{t^2} - t^2 + t^3$	Knot [8, 19]	$-(1+t^4)\frac{(3+4t^3+3t^6)}{t^5}$
$3 + \frac{1}{t^3} - \frac{1}{t^2} - \frac{1}{t} - t - t^2 + t^3$	Knot [10, 153]	$1-2t+t^2+2t^3-t^4-t^6+2t^7+t^8-2t^9+t^{10}$
$-1 + \frac{1}{t^3} - \frac{1}{t^2} + \frac{1}{t} + t - t^2 + t^3$	Knot [7, 1]	$\frac{(1+t^2)(3+2t^2+4t^4+2t^6+3t^8)}{t^5}$
$-33 + \frac{2}{t^3} - \frac{11}{t^2} + \frac{26}{t} + 26t - 11t^2 + 2t^3$	Knot [10, 113]	$-5-42t+167t^2-394t^3+623t^4-720t^5+623t^6-394t^7+167t^8-42t^9+5t^{10}$
$-35 + \frac{2}{t^3} - \frac{11}{t^2} + \frac{27}{t} + 27t - 11t^2 + 2t^3$	Knot [10, 121]	$5-42t+167t^2-396t^3+634t^4-732t^5+634t^6-396t^7+167t^8-42t^9+5t^{10}$
$-31 + \frac{2}{t^3} - \frac{10}{t^2} + \frac{24}{t} + 24t - 10t^2 + 2t^3$	Knot [10, 117]	$-5-38t+144t^2-330t^3+522t^4-600t^5+522t^6-330t^7+144t^8-38t^9+5t^{10}$
$-23 + \frac{2}{t^3} - \frac{9}{t^2} + \frac{19}{t} + 19t - 9t^2 + 2t^3$	Knot [10, 83]	$-5-34t+110t^2-214t^3+301t^4-332t^5+301t^6-214t^7+110t^8-34t^9+5t^{10}$
$-25 + \frac{2}{t^3} - \frac{9}{t^2} + \frac{20}{t} + 20t - 9t^2 + 2t^3$	Knot [10, 84]	$-(1+t^2)\frac{(1-4t+7t^2-4t^3+t^4)(5-14t+20t^2-14t^3+5t^4)}{t^5}$
$-27 + \frac{2}{t^3} - \frac{9}{t^2} + \frac{21}{t} + 21t - 9t^2 + 2t^3$	Knot [10, 95]	$-5-32t+114t^2-248t^3+384t^4-436t^5+384t^6-248t^7+114t^8-32t^9+5t^{10}$
$-15 + \frac{2}{t^3} - \frac{8}{t^2} + \frac{14}{t} + 14t - 8t^2 + 2t^3$	Knot [10, 108]	$-(1+t)^2\frac{(3-12t+14t^2-10t^3+6t^4-10t^5+14t^6-12t^7+3t^8)}{t^5}$
$-17 + \frac{2}{t^3} - \frac{8}{t^2} + \frac{15}{t} + 15t - 8t^2 + 2t^3$	Knot [10, 93]	$\frac{(1-t+t^2)(3-15t+25t^2-18t^3+12t^4-18t^5+25t^6-15t^7+3t^8)}{t^5}$
$-19 + \frac{2}{t^3} - \frac{8}{t^2} + \frac{16}{t} + 16t - 8t^2 + 2t^3$	Knot [10, 27]	$\frac{(1-t+t^2)(5-23t+59t^2-82t^3+88t^4-82t^5+59t^6-23t^7+5t^8)}{t^5}$
$-21 + \frac{2}{t^3} - \frac{8}{t^2} + \frac{17}{t} + 17t - 8t^2 + 2t^3$	Knot [10, 40]	$-5-28t+89t^2-176t^3+258t^4-288t^5+258t^6-176t^7+89t^8-28t^9+5t^{10}$
$-21 + \frac{2}{t^3} - \frac{8}{t^2} + \frac{17}{t} + 17t - 8t^2 + 2t^3$	Knot [10, 103]	$5-30t+93t^2-178t^3+254t^4-280t^5+254t^6-178t^7+93t^8-30t^9+5t^{10}$
$-23 + \frac{2}{t^3} - \frac{8}{t^2} + \frac{18}{t} + 18t - 8t^2 + 2t^3$	Knot [10, 57]	$-5-28t+93t^2-194t^3+300t^4-340t^5+300t^6-194t^7+93t^8-28t^9+5t^{10}$
$-11 + \frac{2}{t^3} - \frac{7}{t^2} + \frac{11}{t} + 11t - 7t^2 + 2t^3$	Knot [10, 19]	$-(1+t)^2\frac{(3-10t+12t^2-6t^3+6t^4-6t^5+12t^6-10t^7+3t^8)}{t^5}$
$-15 + \frac{2}{t^3} - \frac{7}{t^2} + \frac{13}{t} + 13t - 7t^2 + 2t^3$	Knot [10, 23]	$-5-24t+67t^2-108t^3+137t^4-144t^5+137t^6-108t^7+67t^8-24t^9+5t^{10}$
$-15 + \frac{2}{t^3} - \frac{7}{t^2} + \frac{13}{t} + 13t - 7t^2 + 2t^3$	Knot [10, 52]	$-(1-t+t^2)\frac{(3-13t+21t^2-16t^3+12t^4-16t^5+21t^6-13t^7+3t^8)}{t^5}$
$-17 + \frac{2}{t^3} - \frac{7}{t^2} + \frac{14}{t} + 14t - 7t^2 + 2t^3$	Knot [10, 65]	$-(1-t+t^2)\frac{(1-3t+6t^2-3t^3+t^4)(5-4t+5t^2-4t^3+5t^4)}{t^5}$
$-17 + \frac{2}{t^3} - \frac{7}{t^2} + \frac{14}{t} + 14t - 7t^2 + 2t^3$	Knot [10, 77]	$-(1-t+t^2)\frac{(5-19t+47t^2-66t^3+76t^4-66t^5+47t^6-19t^7+5t^8)}{t^5}$
$-19 + \frac{2}{t^3} - \frac{7}{t^2} + \frac{15}{t} + 15t - 7t^2 + 2t^3$	Knot [10, 51]	$-5-24t+73t^2-134t^3+194t^4-212t^5+194t^6-134t^7+73t^8-24t^9+5t^{10}$
$-9 + \frac{2}{t^3} - \frac{6}{t^2} + \frac{9}{t} + 9t - 6t^2 + 2t^3$	Knot [10, 15]	$-3-12t+24t^2-24t^3+17t^4-12t^5+17t^6-24t^7+24t^8-12t^9+3t^{10}$
$-11 + \frac{2}{t^3} - \frac{6}{t^2} + \frac{10}{t} + 10t - 6t^2 + 2t^3$	Knot [10, 12]	$-5-20t+50t^2-72t^3+89t^4-92t^5+89t^6-72t^7+50t^8-20t^9+5t^{10}$
$-11 + \frac{2}{t^3} - \frac{6}{t^2} + \frac{10}{t} + 10t - 6t^2 + 2t^3$	Knot [10, 54]	$-3-12t+24t^2-26t^3+21t^4-16t^5+21t^6-26t^7+24t^8-12t^9+3t^{10}$
$-9 + \frac{2}{t^3} - \frac{5}{t^2} + \frac{8}{t} + 8t - 5t^2 + 2t^3$	Knot [9, 16]	$-(1+t^2)\frac{(13-36t+67t^2-84t^3+94t^4-84t^5+67t^6-36t^7+13t^8)}{t^5}$
$-3 + \frac{2}{t^3} - \frac{4}{t^2} + \frac{4}{t} + 4t - 4t^2 + 2t^3$	Knot [10, 134]	$-13-24t+33t^2-30t^3+41t^4-40t^5+41t^6-30t^7+33t^8-24t^9+13t^{10}$
$-5 + \frac{2}{t^3} - \frac{4}{t^2} + \frac{5}{t} + 5t - 4t^2 + 2t^3$	Knot [9, 6]	$13-24t+45t^2-52t^3+68t^4-64t^5+68t^6-52t^7+45t^8-24t^9+13t^{10}$
$-7 + \frac{2}{t^3} - \frac{4}{t^2} + \frac{6}{t} + 6t - 4t^2 + 2t^3$	Knot [9, 9]	$\frac{(1+t^2)(13-24t+42t^2-48t^3+56t^4-48t^5+42t^6-24t^7+13t^8)}{t^5}$
$1 + \frac{2}{t^3} - \frac{3}{t^2} + \frac{1}{t} + t - 3t^2 + 2t^3$	Knot [10, 128]	$-13-12t+3t^2+10t^3+9t^4-12t^5+9t^6+10t^7+3t^8-12t^9+13t^{10}$
$-1 + \frac{2}{t^3} - \frac{3}{t^2} + \frac{2}{t} + 2t - 3t^2 + 2t^3$	Knot [10, 142]	$-(1+t+t^2)\frac{(13-25t+25t^2-4t^3-4t^4-4t^5+25t^6-25t^7+13t^8)}{t^5}$
$-3 + \frac{2}{t^3} - \frac{3}{t^2} + \frac{3}{t} + 3t - 3t^2 + 2t^3$	Knot [9, 3]	$-13-12t+25t^2-20t^3+32t^4-24t^5+32t^6-20t^7+25t^8-12t^9+13t^{10}$
$17 + 3 - 9 + 15 + 0 + 2 + 2 + 3$	Knot [10, 80]	$2(1-t+t^2)\frac{(15-41t+74t^2-98t^3+112t^4-98t^5+74t^6-41t^7+15t^8)}{t^5}$

$-17 + \frac{3}{t^3} - \frac{9}{t^2} + \frac{16}{t} + 16t - 9t^2 + 3t^3$	Knot [10, 66]	$\frac{(3-4t+3t^2)(10-24t+51t^2-68t^3+79t^4-68t^5+51t^6-24t^7+10t^8)}{t^5}$
$-13 + \frac{3}{t^3} - \frac{8}{t^2} + \frac{12}{t} + 12t - 8t^2 + 3t^3$	Knot [10, 49]	$\frac{2(15-47t+98t^2-146t^3+186t^4-196t^5+186t^6-146t^7+98t^8-47t^9+15t^{10})}{t^5}$
$-11 - \frac{1}{t^4} + \frac{3}{t^3} - \frac{6}{t^2} + \frac{10}{t} + 10t - 6t^2 + 3t^3 - t^4$	Knot [10, 64]	$-\frac{(1+t^2)(1-4t+10t^2-20t^3+27t^4-32t^5+33t^6-32t^7+27t^8-20t^9+10t^{10}-4t^{11})}{t^7}$
$-7 - \frac{1}{t^4} + \frac{3}{t^3} - \frac{5}{t^2} + \frac{7}{t} + 7t - 5t^2 + 3t^3 - t^4$	Knot [10, 9]	$-\frac{1-4t+10t^2-20t^3+25t^4-28t^5+28t^6-28t^7+28t^8-28t^9+25t^{10}-20t^{11}+10t^{12}}{t^7}$
$-5 - \frac{1}{t^4} + \frac{3}{t^3} - \frac{4}{t^2} + \frac{5}{t} + 5t - 4t^2 + 3t^3 - t^4$	Knot [10, 46]	$-\frac{3-12t+21t^2-34t^3+43t^4-52t^5+55t^6-56t^7+55t^8-52t^9+43t^{10}-34t^{11}+21t^{12}}{t^7}$
$-3 - \frac{1}{t^4} + \frac{3}{t^3} - \frac{3}{t^2} + \frac{3}{t} + 3t - 3t^2 + 3t^3 - t^4$	Knot [10, 2]	$\frac{3-12t+16t^2-20t^3+24t^4-24t^5+27t^6-24t^7+27t^8-24t^9+24t^{10}-20t^{11}+16t^{12}-11t^{13}}{t^7}$
$-15 - \frac{1}{t^4} + \frac{4}{t^3} - \frac{9}{t^2} + \frac{14}{t} + 14t - 9t^2 + 4t^3 - t^4$	Knot [10, 94]	$-\frac{(1-t+t^2)(1-5t+14t^2-27t^3+35t^4-40t^5+40t^6-40t^7+35t^8-27t^9+14t^{10}-5t^{11})}{t^7}$
$-17 - \frac{1}{t^4} + \frac{4}{t^3} - \frac{9}{t^2} + \frac{15}{t} + 15t - 9t^2 + 4t^3 - t^4$	Knot [10, 106]	$-\frac{1-6t+20t^2-48t^3+82t^4-114t^5+134t^6-140t^7+134t^8-114t^9+82t^{10}-48t^{11}+20t^{12}-6t^{13}}{t^7}$
$-13 - \frac{1}{t^4} + \frac{4}{t^3} - \frac{8}{t^2} + \frac{12}{t} + 12t - 8t^2 + 4t^3 - t^4$	Knot [10, 82]	$\frac{(-1+t)^2(1+t^2)(1-t+t^2)(1-3t+5t^2-6t^3-2t^4-6t^5+5t^6-3t^7+t^8)}{t^7}$
$-21 - \frac{1}{t^4} + \frac{5}{t^3} - \frac{12}{t^2} + \frac{19}{t} + 19t - 12t^2 + 5t^3 - t^4$	Knot [10, 116]	$\frac{(-1+t)^2(1-2t+4t^2-2t^3+t^4)(1-4t+5t^2-6t^3+6t^4-6t^5+5t^6-4t^7+t^8)}{t^7}$
$-19 - \frac{1}{t^4} + \frac{5}{t^3} - \frac{11}{t^2} + \frac{17}{t} + 17t - 11t^2 + 5t^3 - t^4$	Knot [10, 112]	$\frac{1-8t+29t^2-68t^3+115t^4-152t^5+175t^6-180t^7+175t^8-152t^9+115t^{10}-68t^{11}+29t^{12}-8t^{13}}{t^7}$
$29 + \frac{1}{t^4} - \frac{6}{t^3} + \frac{15}{t^2} - \frac{24}{t} - 24t + 15t^2 - 6t^3 + t^4$	Knot [10, 123]	0
$23 + \frac{1}{t^4} - \frac{5}{t^3} + \frac{12}{t^2} - \frac{19}{t} - 19t + 12t^2 - 5t^3 + t^4$	Knot [10, 118]	0
$11 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{8}{t^2} - \frac{10}{t} - 10t + 8t^2 - 4t^3 + t^4$	Knot [10, 85]	$\frac{2-12t+36t^2-68t^3+101t^4-124t^5+138t^6-140t^7+138t^8-124t^9+101t^{10}-68t^{11}+36t^{12}-12t^{13}}{t^7}$
$19 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{9}{t^2} - \frac{15}{t} - 15t + 9t^2 - 4t^3 + t^4$	Knot [10, 104]	$\frac{(-1+t)^2(1+t)^2(1+t^2)(1-t+t^2)^2}{t^5}$
$17 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{9}{t^2} - \frac{14}{t} - 14t + 9t^2 - 4t^3 + t^4$	Knot [10, 91]	$\frac{(-1+t)^2(1+t)^2(1+t^2)(1-t+t^2)^2}{t^5}$
$13 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{9}{t^2} - \frac{12}{t} - 12t + 9t^2 - 4t^3 + t^4$	Knot [10, 100]	$\frac{2-12t+39t^2-80t^3+128t^4-164t^5+192t^6-196t^7+192t^8-164t^9+128t^{10}-80t^{11}+39t^{12}-12t^{13}}{t^7}$
$21 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{10}{t^2} - \frac{17}{t} - 17t + 10t^2 - 4t^3 + t^4$	Knot [10, 109]	0
$19 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{10}{t^2} - \frac{16}{t} - 16t + 10t^2 - 4t^3 + t^4$	Knot [10, 99]	0
$9 + \frac{1}{t^4} - \frac{3}{t^3} + \frac{5}{t^2} - \frac{7}{t} - 7t + 5t^2 - 3t^3 + t^4$	Knot [10, 17]	0
$5 + \frac{1}{t^4} - \frac{3}{t^3} + \frac{5}{t^2} - \frac{5}{t} - 5t + 5t^2 - 3t^3 + t^4$	Knot [10, 5]	$-\frac{2-8t+20t^2-28t^3+36t^4-36t^5+39t^6-36t^7+39t^8-36t^9+36t^{10}-28t^{11}+20t^{12}-8t^{13}}{t^7}$
$11 + \frac{1}{t^4} - \frac{3}{t^3} + \frac{6}{t^2} - \frac{9}{t} - 9t + 6t^2 - 3t^3 + t^4$	Knot [10, 48]	$\frac{(-1+t)^2(1+t)^2(1+t^2)(1-t+t^2)^2}{t^5}$
$9 + \frac{1}{t^4} - \frac{3}{t^3} + \frac{6}{t^2} - \frac{8}{t} - 8t + 6t^2 - 3t^3 + t^4$	Knot [10, 62]	$-\frac{(1+t^2)(1-t+t^2)(2-6t+13t^2-13t^3+16t^4-15t^5+16t^6-13t^7+13t^8-6t^9)}{t^7}$
$7 + \frac{1}{t^4} - \frac{3}{t^3} + \frac{6}{t^2} - \frac{7}{t} - 7t + 6t^2 - 3t^3 + t^4$	Knot [10, 47]	$-\frac{2-8t+23t^2-38t^3+56t^4-60t^5+68t^6-64t^7+68t^8-60t^9+56t^{10}-38t^{11}+23t^{12}-8t^{13}}{t^7}$
$15 + \frac{1}{t^4} - \frac{3}{t^3} + \frac{7}{t^2} - \frac{12}{t} - 12t + 7t^2 - 3t^3 + t^4$	Knot [10, 79]	0
$-1 + \frac{1}{t^4} - \frac{1}{t^3} + \frac{1}{t} + t - t^3 + t^4$	Knot [10, 124]	$-\frac{2(1+t)^2(1-t+t^2)(1-t+t^2-t^3+t^4)(2+t^3+2t^6)}{t^7}$
$-3 + \frac{1}{t^4} - \frac{1}{t^3} + \frac{2}{t} + 2t - t^3 + t^4$	Knot [10, 139]	$-\frac{4+12t^3-5t^4+4t^5+16t^6-12t^7+16t^8+4t^9-5t^{10}+12t^{11}+4t^{14}}{t^7}$
$-5 + \frac{1}{t^4} - \frac{1}{t^3} - \frac{1}{t^2} + \frac{4}{t} + 4t - t^2 - t^3 + t^4$	Knot [10, 152]	$\frac{4-7t^2+18t^3-7t^4-12t^5+45t^6-52t^7+45t^8-12t^9-7t^{10}+18t^{11}-7t^{12}+4t^{13}}{t^7}$
$1 + \frac{1}{t^4} - \frac{1}{t^3} + \frac{1}{t^2} - \frac{1}{t} - t + t^2 - t^3 + t^4$	Knot [9, 1]	$\frac{(1+t^2)(4+3t^2+6t^4+4t^6+6t^8+3t^{10}+4t^{12})}{t^7}$

Table[{Expand@Factor@ $\left(\frac{za[K] t^2 D[za[K], t] + t (t-1) zp1[K]}{(t-1)^2}\right)$, za[K], K, SymmetryType[K]},
 {K, AllKnots[{3, 7}]}] // MatrixForm

$\frac{1}{t} + t$	$-1 + \frac{1}{t} + t$	Knot[3, 1]	Reversible
0	$3 - \frac{1}{t} - t$	Knot[4, 1]	FullyAmphicheiral
$\frac{2}{t^3} + \frac{3}{t} + 3t + 2t^3$	$1 + \frac{1}{t^2} - \frac{1}{t} - t + t^2$	Knot[5, 1]	Reversible
$-4 + \frac{5}{t} + 5t$	$-3 + \frac{2}{t} + 2t$	Knot[5, 2]	Reversible
$-4 + \frac{1}{t} + t$	$5 - \frac{2}{t} - 2t$	Knot[6, 1]	Reversible
$-4 + \frac{1}{t^3} - \frac{4}{t^2} + \frac{4}{t} + 4t - 4t^2 + t^3$	$-3 - \frac{1}{t^2} + \frac{3}{t} + 3t - t^2$	Knot[6, 2]	Reversible
0	$5 + \frac{1}{t^2} - \frac{3}{t} - 3t + t^2$	Knot[6, 3]	FullyAmphicheiral
$\frac{3}{t^5} + \frac{5}{t^3} + \frac{6}{t} + 6t + 5t^3 + 3t^5$	$-1 + \frac{1}{t^3} - \frac{1}{t^2} + \frac{1}{t} + t - t^2 + t^3$	Knot[7, 1]	Reversible
$-16 + \frac{14}{t} + 14t$	$-5 + \frac{3}{t} + 3t$	Knot[7, 2]	Reversible
$12 - \frac{9}{t^3} + \frac{8}{t^2} - \frac{16}{t} - 16t + 8t^2 - 9t^3$	$3 + \frac{2}{t^2} - \frac{3}{t} - 3t + 2t^2$	Knot[7, 3]	Reversible
$32 - \frac{24}{t} - 24t$	$-7 + \frac{4}{t} + 4t$	Knot[7, 4]	Reversible
$-28 + \frac{9}{t^3} - \frac{16}{t^2} + \frac{29}{t} + 29t - 16t^2 + 9t^3$	$5 + \frac{2}{t^2} - \frac{4}{t} - 4t + 2t^2$	Knot[7, 5]	Reversible
$-20 + \frac{1}{t^3} - \frac{8}{t^2} + \frac{19}{t} + 19t - 8t^2 + t^3$	$-7 - \frac{1}{t^2} + \frac{5}{t} + 5t - t^2$	Knot[7, 6]	Reversible
$8 - \frac{3}{t} - 3t$	$9 + \frac{1}{t^2} - \frac{5}{t} - 5t + t^2$	Knot[7, 7]	Reversible

Table[{{Factor@ $\left(\frac{za[K] t^2 D[za[K], t] + t (t - 1) zp1[K]}{(t - 1)^2}\right)$ }, za[K], K, SymmetryType[K]},

{K, AllKnots[{3, 10}]}] // Sort // MatrixForm

0	$9 - \frac{4}{t} - 4t$	Kn
0	$3 - \frac{1}{t} - t$	Kn
0	$13 + \frac{1}{t^2} - \frac{7}{t} - 7t + t^2$	Kn
0	$5 + \frac{1}{t^2} - \frac{3}{t} - 3t + t^2$	Kn
0	$25 + \frac{4}{t^2} - \frac{16}{t} - 16t + 4t^2$	Kn
0	$19 + \frac{4}{t^2} - \frac{13}{t} - 13t + 4t^2$	Kn
0	$7 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{5}{t} - 5t + 3t^2 - t^3$	Kn
0	$11 - \frac{1}{t^3} + \frac{4}{t^2} - \frac{8}{t} - 8t + 4t^2 - t^3$	Kn
0	$13 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{10}{t} - 10t + 5t^2 - t^3$	Kn
0	$31 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{21}{t} - 21t + 7t^2 - t^3$	Kn
0	$23 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{17}{t} - 17t + 7t^2 - t^3$	Kn
0	$35 - \frac{1}{t^3} + \frac{8}{t^2} - \frac{24}{t} - 24t + 8t^2 - t^3$	Kn
0	$27 - \frac{1}{t^3} + \frac{8}{t^2} - \frac{20}{t} - 20t + 8t^2 - t^3$	Kn
0	$37 - \frac{1}{t^3} + \frac{9}{t^2} - \frac{26}{t} - 26t + 9t^2 - t^3$	Kn
0	$29 + \frac{1}{t^4} - \frac{6}{t^3} + \frac{15}{t^2} - \frac{24}{t} - 24t + 15t^2 - 6t^3 + t^4$	Kn
0	$23 + \frac{1}{t^4} - \frac{5}{t^3} + \frac{12}{t^2} - \frac{19}{t} - 19t + 12t^2 - 5t^3 + t^4$	Kn
0	$21 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{10}{t^2} - \frac{17}{t} - 17t + 10t^2 - 4t^3 + t^4$	Kn
0	$19 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{10}{t^2} - \frac{16}{t} - 16t + 10t^2 - 4t^3 + t^4$	Kn
0	$9 + \frac{1}{t^4} - \frac{3}{t^3} + \frac{5}{t^2} - \frac{7}{t} - 7t + 5t^2 - 3t^3 + t^4$	Kn
0	$15 + \frac{1}{t^4} - \frac{3}{t^3} + \frac{7}{t^2} - \frac{12}{t} - 12t + 7t^2 - 3t^3 + t^4$	Kn
$-\frac{(-1+t)^4 (1+t)^2}{t^3}$	$-1 - \frac{1}{t^2} + \frac{2}{t} + 2t - t^2$	Kn
$\frac{(-1+t)^4 (1+t)^2}{t^3}$	$25 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{18}{t} - 18t + 7t^2 - t^3$	Kn
$\frac{1+t^2}{t}$	$-1 + \frac{1}{t} + t$	Kn
$\frac{1-4t+t^2}{t}$	$5 - \frac{2}{t} - 2t$	Kn
$\frac{3(1-4t+t^2)}{t}$	$5 - \frac{2}{t} - 2t$	Kn
$-\frac{(-2+t)^2 (-1+2t)^2 (1-4t+t^2)}{t^3}$	$27 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{19}{t} - 19t + 7t^2 - t^3$	Kn
$-\frac{4(1-3t+t^2)^2}{t^2}$	$11 + \frac{1}{t^2} - \frac{6}{t} - 6t + t^2$	Kn
$\frac{4(1-t+t^2)}{t}$	$3 + \frac{1}{t^2} - \frac{2}{t} - 2t + t^2$	Kn
$\frac{8(1-t+t^2)}{t}$	$9 + \frac{1}{t^2} - \frac{5}{t} - 5t + t^2$	Kn

$$\begin{aligned}
 & - \frac{(1-7t+t^2)(1-4t+t^2)(1-t+t^2)}{t^3} \\
 & - \frac{4(1-3t+t^2)(1-t+t^2)}{t^2} \\
 & \frac{(1-4t+t^2)(1-3t+t^2)(1-t+t^2)}{t^3} \\
 & - \frac{(-1+t)^2(1+t)^2(1+t^2)(1-t+t^2)^2}{t^5} \\
 & \frac{(-1+t)^2(1+t)^2(1+t^2)(1-t+t^2)^2}{t^5} \\
 & \frac{(-1+t)^2(1+t)^2(1+t^2)(1-t+t^2)^2}{t^5} \\
 & \frac{(-1+t)^2(1+t)^2(1+t^2)(1-t+t^2)^2}{t^5} \\
 & - \frac{3-8t+3t^2}{t} \\
 & \frac{(1-4t+t^2)(1-3t+t^2)(3-7t+3t^2)}{t^3} \\
 & - \frac{8(3-4t+3t^2)}{t} \\
 & \frac{10(3-4t+3t^2)}{t} \\
 & \frac{5-16t+5t^2}{t} \\
 & \frac{18(5-8t+5t^2)}{t} \\
 & \frac{5-4t+5t^2}{t} \\
 & \frac{2(7-20t+7t^2)}{t} \\
 & \frac{2(7-8t+7t^2)}{t} \\
 & \frac{11-28t+11t^2}{t} \\
 & - \frac{5(13-20t+13t^2)}{t} \\
 & - \frac{(-1+5t-7t^2+t^3)(-1+7t-5t^2+t^3)}{t^3} \\
 & \frac{(-1+t)^2(1-12t+12t^2-12t^3+t^4)}{t^3} \\
 & \frac{(-1+t)^2(1-8t+12t^2-8t^3+t^4)}{t^3} \\
 & \frac{(-1+t)^2(1-6t+8t^2-6t^3+t^4)}{t^3} \\
 & \frac{(1+t^2)(1-3t+t^2)^2(1-6t+9t^2-6t^3+t^4)}{t^5} \\
 & \frac{(-1+t)^4(1+t^2)(1-4t+7t^2-4t^3+t^4)}{t^5} \\
 & - \frac{(1-t+t^2)^2(1+t+t^2)(1-3t+6t^2-3t^3+t^4)}{t^5} \\
 & - \frac{3(-1+t)^2(1-2t-2t^3+t^4)}{t^3} \\
 & \frac{(1+t^2)(1-t+t^2)^2(1-2t+7t^2-2t^3+t^4)}{t^5} \\
 & - \frac{(1-3t+t^2)(1-t-2t^2-t^3+t^4)}{t^3} \\
 & - \frac{(1-3t+t^2)(1-4t+4t^2-4t^3+t^4)(1-t-2t^2-t^3+t^4)}{t^5} \\
 & \frac{(1+t^2)(2+t^2+2t^4)}{t^3} \\
 & - \frac{2-9t+12t^2-9t^3+2t^4}{t^2} \\
 & \frac{(1+t^2)(2-8t+11t^2-8t^3+2t^4)}{t^3} \\
 & \frac{2-7t+12t^2-7t^3+2t^4}{t^2} \\
 & \frac{2+5t-4t^2+5t^3+2t^4}{t^2} \\
 & \frac{(-1+t)^2(3-12t+16t^2-12t^3+3t^4)}{t^3} \\
 & - \frac{(-1+t)^2(3-12t+14t^2-12t^3+3t^4)(3-2t+4t^2-2t^3+3t^4)}{t^5} \\
 & - \frac{4-9t+12t^2-9t^3+4t^4}{t^2} \\
 & \frac{(1-3t+t^2)(5-25t+42t^2-25t^3+5t^4)}{t^3} \\
 & \frac{(-1+t)^2(5-18t+16t^2-18t^3+5t^4)}{t^3} \\
 & - \frac{(1+t^2)(1-4t+7t^2-4t^3+t^4)(5-14t+20t^2-14t^3+5t^4)}{t^5} \\
 & - \frac{(1-t+t^2)(1-3t+6t^2-3t^3+t^4)(5-4t+5t^2-4t^3+5t^4)}{t^5} \\
 & 4(-1+t)^2(6-23t+26t^2-23t^3+6t^4)
 \end{aligned}$$

$$\begin{aligned}
 & 5 + \frac{1}{t^2} - \frac{7}{t} - 2t + t^2 \\
 & -11 - \frac{1}{t^2} + \frac{7}{t} + 7t - t^2 \\
 & 13 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{10}{t} - 10t + 5t^2 - t^3 \\
 & 19 + \frac{2}{t^2} - \frac{11}{t} - 11t + 2t^2 \\
 & -1 + \frac{1}{t^3} - \frac{2}{t^2} + \frac{2}{t} + 2t - 2t^2 + t^3 \\
 & 19 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{9}{t^2} - \frac{15}{t} - 15t + 9t^2 - 4t^3 + t^4 \\
 & 17 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{9}{t^2} - \frac{14}{t} - 14t + 9t^2 - 4t^3 + t^4 \\
 & 11 + \frac{1}{t^4} - \frac{3}{t^3} + \frac{6}{t^2} - \frac{9}{t} - 9t + 6t^2 - 3t^3 + t^4 \\
 & 9 + \frac{1}{t^2} - \frac{5}{t} - 5t + t^2 \\
 & 27 + \frac{3}{t^2} - \frac{16}{t} - 16t + 3t^2 \\
 & -7 + \frac{4}{t} + 4t \\
 & -7 + \frac{4}{t} + 4t \\
 & 7 - \frac{3}{t} - 3t \\
 & -13 + \frac{7}{t} + 7t \\
 & -3 + \frac{2}{t} + 2t \\
 & 9 - \frac{4}{t} - 4t \\
 & -5 + \frac{3}{t} + 3t \\
 & 13 - \frac{6}{t} - 6t \\
 & -11 + \frac{6}{t} + 6t \\
 & 21 + \frac{2}{t^2} - \frac{12}{t} - 12t + 2t^2 \\
 & -7 - \frac{1}{t^2} + \frac{5}{t} + 5t - t^2 \\
 & 17 + \frac{3}{t^2} - \frac{11}{t} - 11t + 3t^2 \\
 & 13 + \frac{2}{t^2} - \frac{8}{t} - 8t + 2t^2 \\
 & -23 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{18}{t} + 18t - 7t^2 + t^3 \\
 & -15 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{12}{t} + 12t - 5t^2 + t^3 \\
 & -7 + \frac{1}{t^3} - \frac{3}{t^2} + \frac{6}{t} + 6t - 3t^2 + t^3 \\
 & -9 - \frac{2}{t^2} + \frac{7}{t} + 7t - 2t^2 \\
 & -7 + \frac{1}{t^3} - \frac{3}{t^2} + \frac{6}{t} + 6t - 3t^2 + t^3 \\
 & -5 - \frac{1}{t^2} + \frac{4}{t} + 4t - t^2 \\
 & -7 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{8}{t} + 8t - 5t^2 + t^3 \\
 & 1 + \frac{1}{t^2} - \frac{1}{t} - t + t^2 \\
 & 7 + \frac{1}{t^2} - \frac{4}{t} - 4t + t^2 \\
 & 31 - \frac{1}{t^3} + \frac{8}{t^2} - \frac{22}{t} - 22t + 8t^2 - t^3 \\
 & 15 - \frac{1}{t^3} + \frac{4}{t^2} - \frac{10}{t} - 10t + 4t^2 - t^3 \\
 & 1 + \frac{1}{t^2} - \frac{1}{t} - t + t^2 \\
 & 23 - \frac{1}{t^3} + \frac{6}{t^2} - \frac{16}{t} - 16t + 6t^2 - t^3 \\
 & 21 - \frac{2}{t^3} + \frac{9}{t^2} - \frac{17}{t} - 17t + 9t^2 - 2t^3 \\
 & 21 + \frac{4}{t^2} - \frac{14}{t} - 14t + 4t^2 \\
 & 29 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{20}{t} - 20t + 7t^2 - t^3 \\
 & -11 - \frac{2}{t^2} + \frac{8}{t} + 8t - 2t^2 \\
 & -25 + \frac{2}{t^3} - \frac{9}{t^2} + \frac{20}{t} + 20t - 9t^2 + 2t^3 \\
 & -17 + \frac{2}{t^3} - \frac{7}{t^2} + \frac{14}{t} + 14t - 7t^2 + 2t^3 \\
 & 7 + 4 + 16 + 16 + 4 + 2
 \end{aligned}$$

$$\frac{(3-4t+3t^2)(7-12t+17t^2-12t^3+7t^4)}{t^3}$$

$$2 \frac{(3-4t+3t^2)(11-22t+29t^2-22t^3+11t^4)}{t^3}$$

$$\frac{1-14t+47t^2-60t^3+47t^4-14t^5+t^6}{t^3}$$

$$\frac{1-12t+51t^2-84t^3+51t^4-12t^5+t^6}{t^3}$$

$$\frac{1-10t+30t^2-40t^3+30t^4-10t^5+t^6}{t^3}$$

$$-(1-2t-2t^3+t^4) \frac{(1-10t+33t^2-46t^3+33t^4-10t^5+t^6)}{t^5}$$

$$\frac{1-8t+16t^2-20t^3+16t^4-8t^5+t^6}{t^3}$$

$$\frac{1-8t+16t^2-20t^3+16t^4-8t^5+t^6}{t^3}$$

$$\frac{1-8t+19t^2-20t^3+19t^4-8t^5+t^6}{t^3}$$

$$\frac{1-8t+20t^2-24t^3+20t^4-8t^5+t^6}{t^3}$$

$$\frac{1-8t+24t^2-32t^3+24t^4-8t^5+t^6}{t^3}$$

$$- \frac{1-8t+35t^2-60t^3+35t^4-8t^5+t^6}{t^3}$$

$$-(1-3t+t^2)^2 \frac{(1-6t+8t^2-8t^3+8t^4-6t^5+t^6)}{t^5}$$

$$- \frac{2(1-6t+11t^2-14t^3+11t^4-6t^5+t^6)}{t^3}$$

$$\frac{1-6t+18t^2-24t^3+18t^4-6t^5+t^6}{t^3}$$

$$- \frac{2(1-t-2t^2-t^3+t^4)(1-5t+7t^2-9t^3+7t^4-5t^5+t^6)}{t^5}$$

$$\frac{1-4t+4t^2-4t^3+4t^4-4t^5+t^6}{t^3}$$

$$- \frac{1-4t+12t^2-16t^3+12t^4-4t^5+t^6}{t^3}$$

$$- \frac{1-4t+14t^2-20t^3+14t^4-4t^5+t^6}{t^3}$$

$$-(1-3t+t^2)(1-t+t^2) \frac{(1-2t+8t^2-12t^3+8t^4-2t^5+t^6)}{t^5}$$

$$\frac{1-2t+19t^2-24t^3+19t^4-2t^5+t^6}{t^3}$$

$$- \frac{1+2t-14t^2+20t^3-14t^4+2t^5+t^6}{t^3}$$

$$\frac{2(1+4t+3t^2-4t^3+3t^4+4t^5+t^6)}{t^3}$$

$$- \frac{2(1+t)^2(1-t+t^2)(1-t+t^2-t^3+t^4)(2+t^3+2t^6)}{t^7}$$

$$\frac{2-10t+25t^2-32t^3+25t^4-10t^5+2t^6}{t^3}$$

$$- \frac{4(2-9t+25t^2-34t^3+25t^4-9t^5+2t^6)}{t^3}$$

$$\frac{2-8t+11t^2-12t^3+11t^4-8t^5+2t^6}{t^3}$$

$$- \frac{(1+t^4)(3+4t^3+3t^6)}{t^5}$$

$$\frac{3-20t+70t^2-108t^3+70t^4-20t^5+3t^6}{t^3}$$

$$\frac{3-16t+29t^2-28t^3+29t^4-16t^5+3t^6}{t^3}$$

$$3 \frac{(1-t+t^2)^2(3-14t+22t^2-24t^3+22t^4-14t^5+3t^6)}{t^5}$$

$$\frac{3-8t+6t^2-4t^3+6t^4-8t^5+3t^6}{t^3}$$

$$- \frac{4(4-14t+19t^2-20t^3+19t^4-14t^5+4t^6)}{t^3}$$

$$\frac{4(4-13t+17t^2-18t^3+17t^4-13t^5+4t^6)}{t^3}$$

$$\frac{4-8t+t^2+8t^3+t^4-8t^5+4t^6}{t^3}$$

$$- \frac{5-50t+146t^2-196t^3+146t^4-50t^5+5t^6}{t^3}$$

$$- \frac{5-44t+127t^2-164t^3+127t^4-44t^5+5t^6}{t^3}$$

$$- \frac{5-40t+108t^2-136t^3+108t^4-40t^5+5t^6}{t^3}$$

$$\frac{5-38t+87t^2-112t^3+87t^4-38t^5+5t^6}{t^3}$$

$$\frac{5-36t+84t^2-100t^3+84t^4-36t^5+5t^6}{t^3}$$

$$\frac{5-24t+39t^2-44t^3+39t^4-24t^5+5t^6}{t^3}$$

$$- \frac{5-24t+71t^2-100t^3+71t^4-24t^5+5t^6}{t^3}$$

$$\frac{2(5-22t+40t^2-48t^3+40t^4-22t^5+5t^6)}{t^3}$$

$$-25 - \frac{1}{t^2} + \frac{1}{t} + 10t - 4t$$

$$11 + \frac{3}{t^2} - \frac{8}{t} - 8t + 3t^2$$

$$19 + \frac{5}{t^2} - \frac{14}{t} - 14t + 5t^2$$

$$-9 - \frac{1}{t^2} + \frac{6}{t} + 6t - t^2$$

$$23 + \frac{2}{t^2} - \frac{13}{t} - 13t + 2t^2$$

$$19 - \frac{1}{t^3} + \frac{6}{t^2} - \frac{14}{t} - 14t + 6t^2 - t^3$$

$$-19 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{16}{t} + 16t - 7t^2 + t^3$$

$$-5 - \frac{1}{t^2} + \frac{4}{t} + 4t - t^2$$

$$5 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{4}{t} - 4t + 3t^2 - t^3$$

$$-7 - \frac{1}{t^2} + \frac{5}{t} + 5t - t^2$$

$$17 + \frac{2}{t^2} - \frac{10}{t} - 10t + 2t^2$$

$$15 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{11}{t} - 11t + 5t^2 - t^3$$

$$15 + \frac{2}{t^2} - \frac{9}{t} - 9t + 2t^2$$

$$-23 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{18}{t} + 18t - 7t^2 + t^3$$

$$7 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{5}{t} - 5t + 3t^2 - t^3$$

$$13 + \frac{3}{t^2} - \frac{9}{t} - 9t + 3t^2$$

$$3 - \frac{1}{t^3} + \frac{4}{t^2} - \frac{4}{t} - 4t + 4t^2 - t^3$$

$$-3 - \frac{1}{t^2} + \frac{3}{t} + 3t - t^2$$

$$9 + \frac{2}{t^2} - \frac{6}{t} - 6t + 2t^2$$

$$11 + \frac{2}{t^2} - \frac{7}{t} - 7t + 2t^2$$

$$25 - \frac{2}{t^3} + \frac{9}{t^2} - \frac{19}{t} - 19t + 9t^2 - 2t^3$$

$$5 + \frac{2}{t^2} - \frac{4}{t} - 4t + 2t^2$$

$$9 + \frac{2}{t^2} - \frac{6}{t} - 6t + 2t^2$$

$$-3 + \frac{1}{t^2} + \frac{1}{t} + t + t^2$$

$$-1 + \frac{1}{t^4} - \frac{1}{t^3} + \frac{1}{t} + t - t^3 + t^4$$

$$17 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{12}{t} - 12t + 5t^2 - t^3$$

$$19 + \frac{4}{t^2} - \frac{13}{t} - 13t + 4t^2$$

$$27 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{19}{t} - 19t + 7t^2 - t^3$$

$$1 + \frac{1}{t^3} - \frac{1}{t^2} - t^2 + t^3$$

$$19 + \frac{3}{t^2} - \frac{12}{t} - 12t + 3t^2$$

$$-11 - \frac{2}{t^2} + \frac{8}{t} + 8t - 2t^2$$

$$23 - \frac{2}{t^3} + \frac{9}{t^2} - \frac{18}{t} - 18t + 9t^2 - 2t^3$$

$$-5 - \frac{2}{t^2} + \frac{5}{t} + 5t - 2t^2$$

$$-15 - \frac{4}{t^2} + \frac{12}{t} + 12t - 4t^2$$

$$-13 - \frac{4}{t^2} + \frac{11}{t} + 11t - 4t^2$$

$$-7 - \frac{3}{t^2} + \frac{7}{t} + 7t - 3t^2$$

$$-15 - \frac{2}{t^2} + \frac{10}{t} + 10t - 2t^2$$

$$-17 - \frac{2}{t^2} + \frac{11}{t} + 11t - 2t^2$$

$$-15 - \frac{2}{t^2} + \frac{10}{t} + 10t - 2t^2$$

$$-11 - \frac{2}{t^2} + \frac{8}{t} + 8t - 2t^2$$

$$-13 - \frac{2}{t^2} + \frac{9}{t} + 9t - 2t^2$$

$$-9 - \frac{2}{t^2} + \frac{7}{t} + 7t - 2t^2$$

$$17 + \frac{3}{t^2} - \frac{11}{t} - 11t + 3t^2$$

$$-13 - \frac{3}{t^2} + \frac{10}{t} + 10t - 3t^2$$

$\frac{5-20t+28t^2-32t^3+28t^4-20t^5+5t^6}{t^3}$	$-7 - \frac{2}{t^2} + \frac{6}{t} + 6t - 2t^2$	Kn
$\frac{5-20t+52t^2-68t^3+52t^4-20t^5+5t^6}{t^3}$	$13 + \frac{3}{t^2} - \frac{9}{t} - 9t + 3t^2$	Kno
$\frac{2(5-19t+29t^2-34t^3+29t^4-19t^5+5t^6)}{t^3}$	$-11 - \frac{3}{t^2} + \frac{9}{t} + 9t - 3t^2$	Knot
$\frac{2(6-42t+105t^2-134t^3+105t^4-42t^5+6t^6)}{t^3}$	$-21 - \frac{3}{t^2} + \frac{14}{t} + 14t - 3t^2$	Knc
$\frac{7-50t+147t^2-212t^3+147t^4-50t^5+7t^6}{t^3}$	$33 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{22}{t} - 22t + 7t^2 - t^3$	Kno
$\frac{2(7-44t+104t^2-132t^3+104t^4-44t^5+7t^6)}{t^3}$	$-19 - \frac{3}{t^2} + \frac{13}{t} + 13t - 3t^2$	Kno
$\frac{2(7-28t+44t^2-52t^3+44t^4-28t^5+7t^6)}{t^3}$	$-11 - \frac{3}{t^2} + \frac{9}{t} + 9t - 3t^2$	Kno
$\frac{8-40t+117t^2-164t^3+117t^4-40t^5+8t^6}{t^3}$	$21 + \frac{4}{t^2} - \frac{14}{t} - 14t + 4t^2$	Kno
$\frac{9-16t+29t^2-28t^3+29t^4-16t^5+9t^6}{t^3}$	$5 + \frac{2}{t^2} - \frac{4}{t} - 4t + 2t^2$	Kn
$\frac{9-8t+16t^2-12t^3+16t^4-8t^5+9t^6}{t^3}$	$3 + \frac{2}{t^2} - \frac{3}{t} - 3t + 2t^2$	Kn
$\frac{12-70t+153t^2-188t^3+153t^4-70t^5+12t^6}{t^3}$	$-17 - \frac{3}{t^2} + \frac{12}{t} + 12t - 3t^2$	Knc
$\frac{2(12-68t+145t^2-180t^3+145t^4-68t^5+12t^6)}{t^3}$	$-23 - \frac{4}{t^2} + \frac{16}{t} + 16t - 4t^2$	Kno
$\frac{2(12-64t+135t^2-168t^3+135t^4-64t^5+12t^6)}{t^3}$	$-21 - \frac{4}{t^2} + \frac{15}{t} + 15t - 4t^2$	Kno
$\frac{14-72t+135t^2-160t^3+135t^4-72t^5+14t^6}{t^3}$	$-15 - \frac{3}{t^2} + \frac{11}{t} + 11t - 3t^2$	Knc
$\frac{16-68t+121t^2-140t^3+121t^4-68t^5+16t^6}{t^3}$	$-19 - \frac{4}{t^2} + \frac{14}{t} + 14t - 4t^2$	Kno
$\frac{2(20-46t+77t^2-84t^3+77t^4-46t^5+20t^6)}{t^3}$	$11 + \frac{4}{t^2} - \frac{9}{t} - 9t + 4t^2$	Knc
$\frac{2(20-36t+57t^2-60t^3+57t^4-36t^5+20t^6)}{t^3}$	$9 + \frac{4}{t^2} - \frac{8}{t} - 8t + 4t^2$	Knc
$\frac{21-38t+61t^2-60t^3+61t^4-38t^5+21t^6}{t^3}$	$7 + \frac{3}{t^2} - \frac{6}{t} - 6t + 3t^2$	Knc
$\frac{23-56t+99t^2-108t^3+99t^4-56t^5+23t^6}{t^3}$	$9 + \frac{3}{t^2} - \frac{7}{t} - 7t + 3t^2$	Kn
$\frac{23-28t+46t^2-44t^3+46t^4-28t^5+23t^6}{t^3}$	$5 + \frac{3}{t^2} - \frac{5}{t} - 5t + 3t^2$	Kn
$\frac{24-148t+345t^2-440t^3+345t^4-148t^5+24t^6}{t^3}$	$-25 - \frac{4}{t^2} + \frac{17}{t} + 17t - 4t^2$	Kno
$\frac{24-116t+221t^2-268t^3+221t^4-116t^5+24t^6}{t^3}$	$-19 - \frac{4}{t^2} + \frac{14}{t} + 14t - 4t^2$	Kno
$\frac{2(31-102t+191t^2-226t^3+191t^4-102t^5+31t^6)}{t^3}$	$19 + \frac{5}{t^2} - \frac{14}{t} - 14t + 5t^2$	Knc
$\frac{2(33-123t+244t^2-298t^3+244t^4-123t^5+33t^6)}{t^3}$	$21 + \frac{5}{t^2} - \frac{15}{t} - 15t + 5t^2$	Kno
$\frac{37-242t+603t^2-788t^3+603t^4-242t^5+37t^6}{t^3}$	$-33 - \frac{5}{t^2} + \frac{22}{t} + 22t - 5t^2$	Kno
$\frac{40-128t+243t^2-288t^3+243t^4-128t^5+40t^6}{t^3}$	$15 + \frac{4}{t^2} - \frac{11}{t} - 11t + 4t^2$	Knc
$\frac{40-108t+193t^2-220t^3+193t^4-108t^5+40t^6}{t^3}$	$13 + \frac{4}{t^2} - \frac{10}{t} - 10t + 4t^2$	Knc
$\frac{93-346t+680t^2-828t^3+680t^4-346t^5+93t^6}{t^3}$	$25 + \frac{6}{t^2} - \frac{18}{t} - 18t + 6t^2$	Kno
$\frac{129-480t+942t^2-1148t^3+942t^4-480t^5+129t^6}{t^3}$	$29 + \frac{7}{t^2} - \frac{21}{t} - 21t + 7t^2$	Knot
$\frac{166-692t+1433t^2-1788t^3+1433t^4-692t^5+166t^6}{t^3}$	$37 + \frac{8}{t^2} - \frac{26}{t} - 26t + 8t^2$	Knot
$\frac{(-1+t)^2(1-12t+46t^2-80t^3+86t^4-80t^5+46t^6-12t^7+t^8)}{t^5}$	$-29 + \frac{1}{t^3} - \frac{8}{t^2} + \frac{22}{t} + 22t - 8t^2 + t^3$	Knot
$\frac{(1-3t+t^2)(1-11t+49t^2-106t^3+128t^4-106t^5+49t^6-11t^7+t^8)}{t^5}$	$-33 + \frac{1}{t^3} - \frac{8}{t^2} + \frac{24}{t} + 24t - 8t^2 + t^3$	Kno
$\frac{(-1+t)^2(1-6t+10t^2-6t^3+6t^4-6t^5+10t^6-6t^7+t^8)}{t^5}$	$-9 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{9}{t} + 9t - 5t^2 + t^3$	Knc
$\frac{(1+t^2)(1-6t+20t^2-36t^3+46t^4-36t^5+20t^6-6t^7+t^8)}{t^5}$	$-13 + \frac{1}{t^3} - \frac{4}{t^2} + \frac{10}{t} + 10t - 4t^2 + t^3$	Knot
$\frac{(1-3t+t^2)(1-5t+10t^2-13t^3+10t^4-13t^5+10t^6-5t^7+t^8)}{t^5}$	$-15 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{12}{t} + 12t - 5t^2 + t^3$	Knc
$\frac{(1-t+t^2)(1-5t+11t^2-12t^3+12t^4-12t^5+11t^6-5t^7+t^8)}{t^5}$	$-9 + \frac{1}{t^3} - \frac{4}{t^2} + \frac{8}{t} + 8t - 4t^2 + t^3$	Knc
$\frac{(1-t+t^2)(1-5t+13t^2-32t^3+44t^4-32t^5+13t^6-5t^7+t^8)}{t^5}$	$21 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{16}{t} - 16t + 8t^2 - 2t^3$	Knot
$\frac{(1-t+t^2)(1-5t+13t^2-12t^3+8t^4-12t^5+13t^6-5t^7+t^8)}{t^5}$	$-9 + \frac{1}{t^3} - \frac{4}{t^2} + \frac{8}{t} + 8t - 4t^2 + t^3$	Knot
$\frac{(1-t+t^2)(1-5t+15t^2-34t^3+44t^4-34t^5+15t^6-5t^7+t^8)}{t^5}$	$23 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{17}{t} - 17t + 8t^2 - 2t^3$	Kno
$\frac{(1-t+t^2)(1-5t+17t^2-44t^3+64t^4-44t^5+17t^6-5t^7+t^8)}{t^5}$	$23 - \frac{2}{t^3} + \frac{9}{t^2} - \frac{18}{t} - 18t + 9t^2 - 2t^3$	Kno
$\frac{(1-3t+t^2)(1-5t+18t^2-45t^3+58t^4-45t^5+18t^6-5t^7+t^8)}{t^5}$	$31 - \frac{2}{t^3} + \frac{11}{t^2} - \frac{24}{t} - 24t + 11t^2 - 2t^3$	Knot
$\frac{(-1+t)^2(1-2t+4t^2-2t^3+t^4)(1-4t+5t^2-6t^3+6t^4-6t^5+5t^6-4t^7+t^8)}{t^7}$	$-21 - \frac{1}{t^4} + \frac{5}{t^3} - \frac{12}{t^2} + \frac{19}{t} + 19t - 12t^2 + 5t^3 - t^4$	Knot
$\frac{(-1+t)^2(1-4t+17t^2-48t^3+62t^4-48t^5+17t^6-4t^7+t^8)}{t^5}$	$31 - \frac{2}{t^3} + \frac{10}{t^2} - \frac{23}{t} - 23t + 10t^2 - 2t^3$	Knot

$$\frac{(-1+t)^2(1+t^2)(1-t+t^2)(1-3t+5t^2-6t^3-2t^4-6t^5+5t^6-3t^7+t^8)}{t^7}$$

$$\frac{(-1+t)^2(1-2t+8t^2-22t^3+26t^4-22t^5+8t^6-2t^7+t^8)}{t^5}$$

$$\frac{(1+t^2)(1-2t+9t^2-10t^3+13t^4-10t^5+9t^6-2t^7+t^8)}{t^5}$$

$$-\frac{(1+t^2)(2-8t+11t^2-12t^3+11t^4-12t^5+11t^6-8t^7+2t^8)}{t^5}$$

$$\frac{(1+t^2)(3+2t^2+4t^4+2t^6+3t^8)}{t^5}$$

$$\frac{(1-t+t^2)(3-15t+25t^2-18t^3+12t^4-18t^5+25t^6-15t^7+3t^8)}{t^5}$$

$$-\frac{(1-t+t^2)(3-13t+21t^2-16t^3+12t^4-16t^5+21t^6-13t^7+3t^8)}{t^5}$$

$$-\frac{(-1+t)^2(3-12t+14t^2-10t^3+6t^4-10t^5+14t^6-12t^7+3t^8)}{t^5}$$

$$\frac{(-1+t)^2(3-10t+12t^2-6t^3+6t^4-6t^5+12t^6-10t^7+3t^8)}{t^5}$$

$$\frac{(1-t+t^2)(5-23t+59t^2-82t^3+88t^4-82t^5+59t^6-23t^7+5t^8)}{t^5}$$

$$-\frac{(1-t+t^2)(5-19t+47t^2-66t^3+76t^4-66t^5+47t^6-19t^7+5t^8)}{t^5}$$

$$\frac{(1+t+t^2)(9-61t+171t^2-290t^3+344t^4-290t^5+171t^6-61t^7+9t^8)}{t^5}$$

$$\frac{(-1+t)^2(9-26t+19t^2-40t^3+22t^4-40t^5+19t^6-26t^7+9t^8)}{t^5}$$

$$\frac{(3-4t+3t^2)(10-24t+51t^2-68t^3+79t^4-68t^5+51t^6-24t^7+10t^8)}{t^5}$$

$$-\frac{(1+t^2)(13-36t+67t^2-84t^3+94t^4-84t^5+67t^6-36t^7+13t^8)}{t^5}$$

$$-\frac{(1+t+t^2)(13-25t+25t^2-4t^3-4t^4-4t^5+25t^6-25t^7+13t^8)}{t^5}$$

$$\frac{(1+t^2)(13-24t+42t^2-48t^3+56t^4-48t^5+42t^6-24t^7+13t^8)}{t^5}$$

$$2\frac{(1-t+t^2)(15-41t+74t^2-98t^3+112t^4-98t^5+74t^6-41t^7+15t^8)}{t^5}$$

$$\frac{1-14t+69t^2-160t^3+219t^4-236t^5+219t^6-160t^7+69t^8-14t^9+t^{10}}{t^5}$$

$$\frac{1-12t+52t^2-104t^3+124t^4-128t^5+124t^6-104t^7+52t^8-12t^9+t^{10}}{t^5}$$

$$\frac{1-12t+54t^2-120t^3+157t^4-164t^5+157t^6-120t^7+54t^8-12t^9+t^{10}}{t^5}$$

$$\frac{1-12t+56t^2-140t^3+220t^4-248t^5+220t^6-140t^7+56t^8-12t^9+t^{10}}{t^5}$$

$$\frac{1-12t+65t^2-194t^3+350t^4-416t^5+350t^6-194t^7+65t^8-12t^9+t^{10}}{t^5}$$

$$-\frac{1-12t+68t^2-212t^3+397t^4-476t^5+397t^6-212t^7+68t^8-12t^9+t^{10}}{t^5}$$

$$-\frac{2(1-11t+39t^2-74t^3+109t^4-120t^5+109t^6-74t^7+39t^8-11t^9+t^{10})}{t^5}$$

$$-\frac{1-10t+42t^2-94t^3+133t^4-148t^5+133t^6-94t^7+42t^8-10t^9+t^{10}}{t^5}$$

$$-\frac{1-8t+24t^2-38t^3+40t^4-36t^5+40t^6-38t^7+24t^8-8t^9+t^{10}}{t^5}$$

$$\frac{1-8t+30t^2-78t^3+140t^4-168t^5+140t^6-78t^7+30t^8-8t^9+t^{10}}{t^5}$$

$$-\frac{1-8t+30t^2-62t^3+89t^4-96t^5+89t^6-62t^7+30t^8-8t^9+t^{10}}{t^5}$$

$$-\frac{1-8t+31t^2-64t^3+85t^4-92t^5+85t^6-64t^7+31t^8-8t^9+t^{10}}{t^5}$$

$$\frac{1-8t+33t^2-80t^3+132t^4-152t^5+132t^6-80t^7+33t^8-8t^9+t^{10}}{t^5}$$

$$-\frac{1-6t+15t^2-16t^3+10t^4-12t^5+10t^6-16t^7+15t^8-6t^9+t^{10}}{t^5}$$

$$\frac{1-6t+26t^2-60t^3+98t^4-112t^5+98t^6-60t^7+26t^8-6t^9+t^{10}}{t^5}$$

$$-\frac{1-4t+10t^2-28t^3+49t^4-60t^5+49t^6-28t^7+10t^8-4t^9+t^{10}}{t^5}$$

$$-\frac{1-4t+10t^2-24t^3+37t^4-44t^5+37t^6-24t^7+10t^8-4t^9+t^{10}}{t^5}$$

$$-\frac{1-4t+10t^2-12t^3+13t^4-12t^5+13t^6-12t^7+10t^8-4t^9+t^{10}}{t^5}$$

$$\frac{1-4t+18t^2-36t^3+62t^4-68t^5+62t^6-36t^7+18t^8-4t^9+t^{10}}{t^5}$$

$$\frac{1-2t+t^2+2t^3-t^4-t^6+2t^7+t^8-2t^9+t^{10}}{t^5}$$

$$\frac{2-24t+105t^2-244t^3+390t^4-448t^5+390t^6-244t^7+105t^8-24t^9+2t^{10}}{t^5}$$

$$\frac{2-18t+55t^2-104t^3+149t^4-164t^5+149t^6-104t^7+55t^8-18t^9+2t^{10}}{t^5}$$

$$-\frac{2-16t+41t^2-52t^3+66t^4-64t^5+66t^6-52t^7+41t^8-16t^9+2t^{10}}{t^5}$$

$$-\frac{2-16t+44t^2-66t^3+87t^4-88t^5+87t^6-66t^7+44t^8-16t^9+2t^{10}}{t^5}$$

$$\frac{2-16t+47t^2-84t^3+117t^4-124t^5+117t^6-84t^7+47t^8-16t^9+2t^{10}}{t^5}$$

$$-13 - \frac{1}{t^4} + \frac{4}{t^3} - \frac{8}{t^2} + \frac{12}{t} + 12t - 8t^2 + 4t^3 - t^4 \quad \text{Kno}$$

$$19 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{15}{t} - 15t + 8t^2 - 2t^3 \quad \text{Kno}$$

$$-5 + \frac{1}{t^3} - \frac{2}{t^2} + \frac{4}{t} + 4t - 2t^2 + t^3 \quad \text{Knot}$$

$$5 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{4}{t} - 4t + 3t^2 - t^3 \quad \text{Kn}$$

$$-1 + \frac{1}{t^3} - \frac{1}{t^2} + \frac{1}{t} + t - t^2 + t^3 \quad \text{Kn}$$

$$-17 + \frac{2}{t^3} - \frac{8}{t^2} + \frac{15}{t} + 15t - 8t^2 + 2t^3 \quad \text{Kno}$$

$$-15 + \frac{2}{t^3} - \frac{7}{t^2} + \frac{13}{t} + 13t - 7t^2 + 2t^3 \quad \text{Kno}$$

$$-15 + \frac{2}{t^3} - \frac{8}{t^2} + \frac{14}{t} + 14t - 8t^2 + 2t^3 \quad \text{Knot}$$

$$-11 + \frac{2}{t^3} - \frac{7}{t^2} + \frac{11}{t} + 11t - 7t^2 + 2t^3 \quad \text{Kno}$$

$$-19 + \frac{2}{t^3} - \frac{8}{t^2} + \frac{16}{t} + 16t - 8t^2 + 2t^3 \quad \text{Kno}$$

$$-17 + \frac{2}{t^3} - \frac{7}{t^2} + \frac{14}{t} + 14t - 7t^2 + 2t^3 \quad \text{Kno}$$

$$13 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{12}{t} - 12t + 8t^2 - 2t^3 \quad \text{Kno}$$

$$9 - \frac{2}{t^3} + \frac{7}{t^2} - \frac{9}{t} - 9t + 7t^2 - 2t^3 \quad \text{Kno}$$

$$-19 + \frac{3}{t^3} - \frac{9}{t^2} + \frac{16}{t} + 16t - 9t^2 + 3t^3 \quad \text{Kno}$$

$$-9 + \frac{2}{t^3} - \frac{5}{t^2} + \frac{8}{t} + 8t - 5t^2 + 2t^3 \quad \text{Kno}$$

$$-1 + \frac{2}{t^3} - \frac{3}{t^2} + \frac{2}{t} + 2t - 3t^2 + 2t^3 \quad \text{Knot}$$

$$-7 + \frac{2}{t^3} - \frac{4}{t^2} + \frac{6}{t} + 6t - 4t^2 + 2t^3 \quad \text{Kn}$$

$$-17 + \frac{3}{t^3} - \frac{9}{t^2} + \frac{15}{t} + 15t - 9t^2 + 3t^3 \quad \text{Kno}$$

$$-25 + \frac{1}{t^3} - \frac{8}{t^2} + \frac{20}{t} + 20t - 8t^2 + t^3 \quad \text{Knot}$$

$$-17 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{15}{t} + 15t - 7t^2 + t^3 \quad \text{Kno}$$

$$-21 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{17}{t} + 17t - 7t^2 + t^3 \quad \text{Kno}$$

$$-25 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{19}{t} + 19t - 7t^2 + t^3 \quad \text{Kno}$$

$$-27 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{20}{t} + 20t - 7t^2 + t^3 \quad \text{Kno}$$

$$-29 + \frac{1}{t^3} - \frac{7}{t^2} + \frac{21}{t} + 21t - 7t^2 + t^3 \quad \text{Kno}$$

$$13 - \frac{1}{t^3} + \frac{6}{t^2} - \frac{11}{t} - 11t + 6t^2 - t^3 \quad \text{Knot}$$

$$-17 + \frac{1}{t^3} - \frac{6}{t^2} + \frac{14}{t} + 14t - 6t^2 + t^3 \quad \text{Kno}$$

$$-11 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{10}{t} + 10t - 5t^2 + t^3 \quad \text{Kno}$$

$$27 - \frac{2}{t^3} + \frac{10}{t^2} - \frac{21}{t} - 21t + 10t^2 - 2t^3 \quad \text{Knot}$$

$$-15 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{12}{t} + 12t - 5t^2 + t^3 \quad \text{Knot}$$

$$-13 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{11}{t} + 11t - 5t^2 + t^3 \quad \text{Kno}$$

$$-17 + \frac{1}{t^3} - \frac{5}{t^2} + \frac{13}{t} + 13t - 5t^2 + t^3 \quad \text{Kno}$$

$$-5 + \frac{1}{t^3} - \frac{4}{t^2} + \frac{6}{t} + 6t - 4t^2 + t^3 \quad \text{Kno}$$

$$-11 + \frac{1}{t^3} - \frac{4}{t^2} + \frac{9}{t} + 9t - 4t^2 + t^3 \quad \text{Knot}$$

$$17 - \frac{2}{t^3} + \frac{7}{t^2} - \frac{13}{t} - 13t + 7t^2 - 2t^3 \quad \text{Kno}$$

$$13 - \frac{2}{t^3} + \frac{6}{t^2} - \frac{10}{t} - 10t + 6t^2 - 2t^3 \quad \text{Kno}$$

$$-5 + \frac{1}{t^3} - \frac{3}{t^2} + \frac{5}{t} + 5t - 3t^2 + t^3 \quad \text{Kn}$$

$$-9 + \frac{1}{t^3} - \frac{3}{t^2} + \frac{7}{t} + 7t - 3t^2 + t^3 \quad \text{Knot}$$

$$3 + \frac{1}{t^3} - \frac{1}{t^2} - \frac{1}{t} - t - t^2 + t^3 \quad \text{Knot}$$

$$21 - \frac{1}{t^3} + \frac{7}{t^2} - \frac{16}{t} - 16t + 7t^2 - t^3 \quad \text{Kno}$$

$$11 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{9}{t} - 9t + 5t^2 - t^3 \quad \text{Knot}$$

$$7 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{7}{t} - 7t + 5t^2 - t^3 \quad \text{Kno}$$

$$9 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{8}{t} - 8t + 5t^2 - t^3 \quad \text{Kno}$$

$$11 - \frac{1}{t^3} + \frac{5}{t^2} - \frac{9}{t} - 9t + 5t^2 - t^3 \quad \text{Kno}$$

$$\frac{2-14t+32t^2-52t^3+67t^4-72t^5+67t^6-52t^7+32t^8-14t^9+2t^{10}}{t^5}$$

$$\frac{-2-12t+26t^2-38t^3+45t^4-44t^5+45t^6-38t^7+26t^8-12t^9+2t^{10}}{t^5}$$

$$\frac{-2-8t+7t^2-2t^3+5t^4-4t^5+5t^6-2t^7+7t^8-8t^9+2t^{10}}{t^5}$$

$$\frac{2-8t+10t^2-12t^3+13t^4-12t^5+13t^6-12t^7+10t^8-8t^9+2t^{10}}{t^5}$$

$$\frac{-(1+t^2)(1-t+t^2)(2-6t+13t^2-13t^3+16t^4-15t^5+16t^6-13t^7+13t^8-6t^9+2t^{10})}{t^7}$$

$$\frac{-3-12t+24t^2-26t^3+21t^4-16t^5+21t^6-26t^7+24t^8-12t^9+3t^{10}}{t^5}$$

$$\frac{-3-12t+24t^2-24t^3+17t^4-12t^5+17t^6-24t^7+24t^8-12t^9+3t^{10}}{t^5}$$

$$\frac{-3+6t-13t^2+47t^4-68t^5+47t^6-13t^8+6t^9+3t^{10}}{t^5}$$

$$\frac{3+6t-3t^2+4t^3+14t^4-12t^5+14t^6+4t^7-3t^8+6t^9+3t^{10}}{t^5}$$

$$\frac{5-42t+167t^2-396t^3+634t^4-732t^5+634t^6-396t^7+167t^8-42t^9+5t^{10}}{t^5}$$

$$\frac{-5-42t+167t^2-394t^3+623t^4-720t^5+623t^6-394t^7+167t^8-42t^9+5t^{10}}{t^5}$$

$$\frac{-5-38t+144t^2-330t^3+522t^4-600t^5+522t^6-330t^7+144t^8-38t^9+5t^{10}}{t^5}$$

$$\frac{-5-34t+110t^2-214t^3+301t^4-332t^5+301t^6-214t^7+110t^8-34t^9+5t^{10}}{t^5}$$

$$\frac{-5-32t+114t^2-248t^3+384t^4-436t^5+384t^6-248t^7+114t^8-32t^9+5t^{10}}{t^5}$$

$$\frac{5-30t+93t^2-178t^3+254t^4-280t^5+254t^6-178t^7+93t^8-30t^9+5t^{10}}{t^5}$$

$$\frac{-5-28t+89t^2-176t^3+258t^4-288t^5+258t^6-176t^7+89t^8-28t^9+5t^{10}}{t^5}$$

$$\frac{-5-28t+93t^2-194t^3+300t^4-340t^5+300t^6-194t^7+93t^8-28t^9+5t^{10}}{t^5}$$

$$\frac{-5-24t+67t^2-108t^3+137t^4-144t^5+137t^6-108t^7+67t^8-24t^9+5t^{10}}{t^5}$$

$$\frac{-5-24t+73t^2-134t^3+194t^4-212t^5+194t^6-134t^7+73t^8-24t^9+5t^{10}}{t^5}$$

$$\frac{-5-20t+50t^2-72t^3+89t^4-92t^5+89t^6-72t^7+50t^8-20t^9+5t^{10}}{t^5}$$

$$\frac{7-20t+23t^2-28t^3+26t^4-24t^5+26t^6-28t^7+23t^8-20t^9+7t^{10}}{t^5}$$

$$\frac{-7-20t+27t^2-36t^3+35t^4-36t^5+35t^6-36t^7+27t^8-20t^9+7t^{10}}{t^5}$$

$$\frac{-9-68t+216t^2-428t^3+622t^4-696t^5+622t^6-428t^7+216t^8-68t^9+9t^{10}}{t^5}$$

$$\frac{-9-60t+167t^2-298t^3+410t^4-448t^5+410t^6-298t^7+167t^8-60t^9+9t^{10}}{t^5}$$

$$\frac{9-52t+125t^2-204t^3+263t^4-280t^5+263t^6-204t^7+125t^8-52t^9+9t^{10}}{t^5}$$

$$\frac{9-52t+131t^2-232t^3+314t^4-344t^5+314t^6-232t^7+131t^8-52t^9+9t^{10}}{t^5}$$

$$\frac{-9-52t+133t^2-234t^3+312t^4-340t^5+312t^6-234t^7+133t^8-52t^9+9t^{10}}{t^5}$$

$$\frac{-9-44t+94t^2-150t^3+186t^4-200t^5+186t^6-150t^7+94t^8-44t^9+9t^{10}}{t^5}$$

$$\frac{-9-44t+104t^2-184t^3+245t^4-272t^5+245t^6-184t^7+104t^8-44t^9+9t^{10}}{t^5}$$

$$\frac{9-36t+56t^2-72t^3+81t^4-84t^5+81t^6-72t^7+56t^8-36t^9+9t^{10}}{t^5}$$

$$\frac{-13-24t+33t^2-30t^3+41t^4-40t^5+41t^6-30t^7+33t^8-24t^9+13t^{10}}{t^5}$$

$$\frac{13-24t+45t^2-52t^3+68t^4-64t^5+68t^6-52t^7+45t^8-24t^9+13t^{10}}{t^5}$$

$$\frac{-13-12t+3t^2+10t^3+9t^4-12t^5+9t^6+10t^7+3t^8-12t^9+13t^{10}}{t^5}$$

$$\frac{-13-12t+25t^2-20t^3+32t^4-24t^5+32t^6-20t^7+25t^8-12t^9+13t^{10}}{t^5}$$

$$\frac{2(15-47t+98t^2-146t^3+186t^4-196t^5+186t^6-146t^7+98t^8-47t^9+15t^{10})}{t^5}$$

$$\frac{-(1-t+t^2)(1-5t+14t^2-27t^3+35t^4-40t^5+40t^6-40t^7+35t^8-27t^9+14t^{10}-5t^{11}+t^{12})}{t^7}$$

$$\frac{-(1+t^2)(1-4t+10t^2-20t^3+27t^4-32t^5+33t^6-32t^7+27t^8-20t^9+10t^{10}-4t^{11}+t^{12})}{t^7}$$

$$\frac{(1+t^2)(4+3t^2+6t^4+4t^6+6t^8+3t^{10}+4t^{12})}{t^7}$$

$$\frac{1-8t+29t^2-68t^3+115t^4-152t^5+175t^6-180t^7+175t^8-152t^9+115t^{10}-68t^{11}+29t^{12}-8t^{13}+14t^{14}}{t^7}$$

$$\frac{-1-6t+20t^2-48t^3+82t^4-114t^5+134t^6-140t^7+134t^8-114t^9+82t^{10}-48t^{11}+20t^{12}-6t^{13}+14t^{14}}{t^7}$$

$$\frac{-1-4t+10t^2-20t^3+25t^4-28t^5+28t^6-28t^7+28t^8-28t^9+25t^{10}-20t^{11}+10t^{12}-4t^{13}+14t^{14}}{t^7}$$

$$\frac{2-12t+36t^2-68t^3+101t^4-124t^5+138t^6-140t^7+138t^8-124t^9+101t^{10}-68t^{11}+36t^{12}-12t^{13}+2t^{14}}{t^7}$$

$$\frac{2-12t+39t^2-80t^3+128t^4-164t^5+192t^6-196t^7+192t^8-164t^9+128t^{10}-80t^{11}+39t^{12}-12t^{13}+2t^{14}}{t^7}$$

$$\frac{-2-8t+20t^2-28t^3+36t^4-36t^5+39t^6-36t^7+39t^8-36t^9+36t^{10}-28t^{11}+20t^{12}-8t^{13}+2t^{14}}{t^7}$$

$$7 - \frac{1}{t^3} + \frac{4}{t^2} - \frac{6}{t} - 6t + 4t^2 - t^3 \quad \text{Knot}$$

$$7 - \frac{1}{t^3} + \frac{4}{t^2} - \frac{6}{t} - 6t + 4t^2 - t^3 \quad \text{Knot}$$

$$1 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{2}{t} - 2t + 3t^2 - t^3 \quad \text{Knc}$$

$$3 - \frac{1}{t^3} + \frac{3}{t^2} - \frac{3}{t} - 3t + 3t^2 - t^3 \quad \text{Kn}$$

$$9 + \frac{1}{t^4} - \frac{3}{t^3} + \frac{6}{t^2} - \frac{8}{t} - 8t + 6t^2 - 3t^3 + t^4 \quad \text{Kno}$$

$$-11 + \frac{2}{t^3} - \frac{6}{t^2} + \frac{10}{t} + 10t - 6t^2 + 2t^3 \quad \text{Kno}$$

$$-9 + \frac{2}{t^3} - \frac{6}{t^2} + \frac{9}{t} + 9t - 6t^2 + 2t^3 \quad \text{Kno}$$

$$7 + \frac{1}{t^3} - \frac{4}{t} - 4t + t^3 \quad \text{Knot}$$

$$3 + \frac{1}{t^3} - \frac{2}{t} - 2t + t^3 \quad \text{Knot}$$

$$-35 + \frac{2}{t^3} - \frac{11}{t^2} + \frac{27}{t} + 27t - 11t^2 + 2t^3 \quad \text{Knot}$$

$$-33 + \frac{2}{t^3} - \frac{11}{t^2} + \frac{26}{t} + 26t - 11t^2 + 2t^3 \quad \text{Knot}$$

$$-31 + \frac{2}{t^3} - \frac{10}{t^2} + \frac{24}{t} + 24t - 10t^2 + 2t^3 \quad \text{Knot}$$

$$-23 + \frac{2}{t^3} - \frac{9}{t^2} + \frac{19}{t} + 19t - 9t^2 + 2t^3 \quad \text{Kno}$$

$$-27 + \frac{2}{t^3} - \frac{9}{t^2} + \frac{21}{t} + 21t - 9t^2 + 2t^3 \quad \text{Kno}$$

$$-21 + \frac{2}{t^3} - \frac{8}{t^2} + \frac{17}{t} + 17t - 8t^2 + 2t^3 \quad \text{Knot}$$

$$-21 + \frac{2}{t^3} - \frac{8}{t^2} + \frac{17}{t} + 17t - 8t^2 + 2t^3 \quad \text{Kno}$$

$$-23 + \frac{2}{t^3} - \frac{8}{t^2} + \frac{18}{t} + 18t - 8t^2 + 2t^3 \quad \text{Kno}$$

$$-15 + \frac{2}{t^3} - \frac{7}{t^2} + \frac{13}{t} + 13t - 7t^2 + 2t^3 \quad \text{Kno}$$

$$-19 + \frac{2}{t^3} - \frac{7}{t^2} + \frac{15}{t} + 15t - 7t^2 + 2t^3 \quad \text{Kno}$$

$$-11 + \frac{2}{t^3} - \frac{6}{t^2} + \frac{10}{t} + 10t - 6t^2 + 2t^3 \quad \text{Kno}$$

$$5 - \frac{2}{t^3} + \frac{5}{t^2} - \frac{5}{t} - 5t + 5t^2 - 2t^3 \quad \text{Knc}$$

$$7 - \frac{2}{t^3} + \frac{5}{t^2} - \frac{6}{t} - 6t + 5t^2 - 2t^3 \quad \text{Kno}$$

$$25 - \frac{2}{t^3} + \frac{10}{t^2} - \frac{20}{t} - 20t + 10t^2 - 2t^3 \quad \text{Kno}$$

$$19 - \frac{2}{t^3} + \frac{9}{t^2} - \frac{16}{t} - 16t + 9t^2 - 2t^3 \quad \text{Kno}$$

$$15 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{13}{t} - 13t + 8t^2 - 2t^3 \quad \text{Kno}$$

$$17 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{14}{t} - 14t + 8t^2 - 2t^3 \quad \text{Kno}$$

$$17 - \frac{2}{t^3} + \frac{8}{t^2} - \frac{14}{t} - 14t + 8t^2 - 2t^3 \quad \text{Kno}$$

$$13 - \frac{2}{t^3} + \frac{7}{t^2} - \frac{11}{t} - 11t + 7t^2 - 2t^3 \quad \text{Kno}$$

$$15 - \frac{2}{t^3} + \frac{7}{t^2} - \frac{12}{t} - 12t + 7t^2 - 2t^3 \quad \text{Kno}$$

$$7 - \frac{2}{t^3} + \frac{6}{t^2} - \frac{7}{t} - 7t + 6t^2 - 2t^3 \quad \text{Knc}$$

$$-3 + \frac{2}{t^3} - \frac{4}{t^2} + \frac{4}{t} + 4t - 4t^2 + 2t^3 \quad \text{Knot}$$

$$-5 + \frac{2}{t^3} - \frac{4}{t^2} + \frac{5}{t} + 5t - 4t^2 + 2t^3 \quad \text{Kn}$$

$$1 + \frac{2}{t^3} - \frac{3}{t^2} + \frac{1}{t} + t - 3t^2 + 2t^3 \quad \text{Knot}$$

$$-3 + \frac{2}{t^3} - \frac{3}{t^2} + \frac{3}{t} + 3t - 3t^2 + 2t^3 \quad \text{Kn}$$

$$-13 + \frac{3}{t^3} - \frac{8}{t^2} + \frac{12}{t} + 12t - 8t^2 + 3t^3 \quad \text{Kno}$$

$$-15 - \frac{1}{t^4} + \frac{4}{t^3} - \frac{9}{t^2} + \frac{14}{t} + 14t - 9t^2 + 4t^3 - t^4 \quad \text{Kno}$$

$$-11 - \frac{1}{t^4} + \frac{3}{t^3} - \frac{6}{t^2} + \frac{10}{t} + 10t - 6t^2 + 3t^3 - t^4 \quad \text{Kno}$$

$$1 + \frac{1}{t^4} - \frac{1}{t^3} + \frac{1}{t^2} - \frac{1}{t} - t + t^2 - t^3 + t^4 \quad \text{Kn}$$

$$-19 - \frac{1}{t^4} + \frac{5}{t^3} - \frac{11}{t^2} + \frac{17}{t} + 17t - 11t^2 + 5t^3 - t^4 \quad \text{Knot}$$

$$-17 - \frac{1}{t^4} + \frac{4}{t^3} - \frac{9}{t^2} + \frac{15}{t} + 15t - 9t^2 + 4t^3 - t^4 \quad \text{Knot}$$

$$-7 - \frac{1}{t^4} + \frac{3}{t^3} - \frac{5}{t^2} + \frac{7}{t} + 7t - 5t^2 + 3t^3 - t^4 \quad \text{Knc}$$

$$11 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{8}{t^2} - \frac{10}{t} - 10t + 8t^2 - 4t^3 + t^4 \quad \text{Kno}$$

$$13 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{9}{t^2} - \frac{12}{t} - 12t + 9t^2 - 4t^3 + t^4 \quad \text{Knot}$$

$$5 + \frac{1}{t^4} - \frac{3}{t^3} + \frac{5}{t^2} - \frac{5}{t} - 5t + 5t^2 - 3t^3 + t^4 \quad \text{Knc}$$

$$\frac{-2-8t+23t^2-38t^3+30t^4-66t^5+66t^6-64t^7+58t^8-66t^9+30t^{10}-38t^{11}+23t^{12}-8t^{13}+2t^{14}}{t^7}$$

$$\frac{3-12t+16t^2-20t^3+24t^4-24t^5+27t^6-24t^7+27t^8-24t^9+24t^{10}-20t^{11}+16t^{12}-12t^{13}+3t^{14}}{t^7}$$

$$\frac{-3-12t+21t^2-34t^3+43t^4-52t^5+55t^6-56t^7+55t^8-52t^9+43t^{10}-34t^{11}+21t^{12}-12t^{13}+3t^{14}}{t^7}$$

$$\frac{-4+12t^3-5t^4+4t^5+16t^6-12t^7+16t^8+4t^9-5t^{10}+12t^{11}+4t^{14}}{t^7}$$

$$\frac{4-7t^2+18t^3-7t^4-12t^5+45t^6-52t^7+45t^8-12t^9-7t^{10}+18t^{11}-7t^{12}+4t^{14}}{t^7}$$

$$\frac{1}{t^4} - \frac{1}{t^3} + \frac{11}{t^2} - \frac{7}{t} - 7t + 6t^2 - 3t^3 + t^4 \quad \text{Kno}$$

$$-3 - \frac{1}{t^4} + \frac{3}{t^3} - \frac{3}{t^2} + \frac{3}{t} + 3t - 3t^2 + 3t^3 - t^4 \quad \text{Kno}$$

$$-5 - \frac{1}{t^4} + \frac{3}{t^3} - \frac{4}{t^2} + \frac{5}{t} + 5t - 4t^2 + 3t^3 - t^4 \quad \text{Kno}$$

$$-3 + \frac{1}{t^4} - \frac{1}{t^3} + \frac{2}{t} + 2t - t^3 + t^4 \quad \text{Knot}$$

$$-5 + \frac{1}{t^4} - \frac{1}{t^3} - \frac{1}{t^2} + \frac{4}{t} + 4t - t^2 - t^3 + t^4 \quad \text{Knot}$$