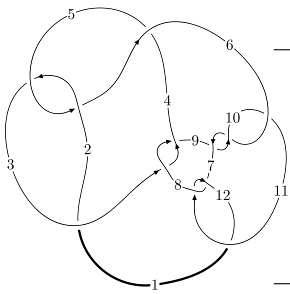
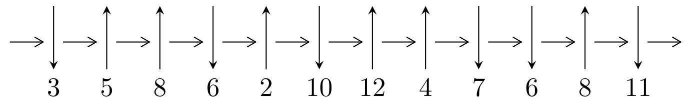
$12n_{0268}$ $(K12n_{0268})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$6,10 \underset{c_6}{\rightarrow} 7 \underset{c_{10}}{\rightarrow} 2,11 \underset{c_5}{\rightarrow} 5 \underset{c_2}{\longrightarrow} 3 \underset{c_1}{\longrightarrow} 1 \underset{c_4}{\longrightarrow} 4 \underset{c_9}{\longrightarrow} 9 \underset{c_8}{\longrightarrow} 8 \underset{c_{12}}{\rightarrow} 12 \twoheadrightarrow c_3, c_7, c_{11}$$

Ideals for irreducible components[2]of $X_{\textbf{par}}$

$$\begin{aligned}
I_1^u = \langle &-3.29204 \times 10^{20} u^{19} + 9.27352 \times 10^{20} u^{18} + \cdots + 2.43864 \times 10^{22} b - 1.34033 \times 10^{22}, \\
&- 4.39429 \times 10^{21} u^{19} + 1.24794 \times 10^{22} u^{18} + \cdots + 9.75456 \times 10^{22} a - 4.90353 \times 10^{23}, \\
&u^{20} - 3u^{19} + \cdots + 109u + 34 \rangle \\
I_2^u = \langle &-u^2 a - u^2 + b - a - 1,\ 2u^3 a - 4u^2 a - u^3 + 4a^2 + 6au - 2u^2 + 2a - u + 3,\ u^4 - u^3 + 3u^2 - 2u + 1 \rangle \\
I_3^u = \langle &16a^3 u + 7a^3 - 67a^2 u + 5a^2 + 153au + 61b - 36a - 158u + 91, \\
&a^4 - 3a^3 u - 5a^3 + 14a^2 u + 9a^2 - 26au - 5a + 18u - 5,\ u^2 + 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 36 representations.

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[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2]All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I. $I_1^u = \langle -3.29 \times 10^{20}u^{19} + 9.27 \times 10^{20}u^{18} + \cdots + 2.44 \times 10^{22}b - 1.34 \times 10^{22},\ -4.39 \times 10^{21}u^{19} + 1.25 \times 10^{22}u^{18} + \cdots + 9.75 \times 10^{22}a - 4.90 \times 10^{23},\ u^{20} - 3u^{19} + \cdots + 109u + 34 \rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.0450486u^{19} - 0.127934u^{18} + \cdots + 22.3785u + 5.02691 \\ 0.0134995u^{19} - 0.0380274u^{18} + \cdots + 4.80738u + 0.549621 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.00528585u^{19} - 0.0271975u^{18} + \cdots + 10.3946u - 0.455911 \\ 0.00385593u^{19} - 0.00521186u^{18} + \cdots + 2.81112u - 0.156325 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.0193868u^{19} - 0.0630592u^{18} + \cdots + 16.0098u + 1.70343 \\ 0.00436855u^{19} - 0.00558340u^{18} + \cdots + 4.17123u + 0.514711 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.0197609u^{19} - 0.0588829u^{18} + \cdots + 10.4067u + 2.39866 \\ 0.00436280u^{19} - 0.0129388u^{18} + \cdots + 2.70245u + 0.389051 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.00914178u^{19} - 0.0324093u^{18} + \cdots + 13.2058u - 0.612236 \\ 0.00385593u^{19} - 0.00521186u^{18} + \cdots + 2.81112u - 0.156325 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.0119922u^{19} - 0.0407718u^{18} + \cdots + 4.81606u - 2.27540 \\ 0.000306872u^{19} - 0.00141344u^{18} + \cdots + 0.273172u - 0.657170 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.0193285u^{19} - 0.0576787u^{18} + \cdots + 9.52664u + 2.37998 \\ 0.00479521u^{19} - 0.0141430u^{18} + \cdots + 3.58255u + 0.407734 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{186869257400074762531833}{1950911811173568969605 12}u^{19} + \frac{1173562123403003788618 9}{487727952793392242401 28}u^{18} + \cdots - \frac{910761658378387100177804 5}{195091181117356896960512}u - \frac{821485723435336358190 15}{573797591521637932236 8}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{20} + 15u^{19} + \cdots - 353u + 16$
c_2, c_5	$u^{20} + 7u^{19} + \cdots + 35u + 4$
c_3, c_8	$u^{20} - u^{19} + \cdots + 2560u + 2048$
c_6, c_9, c_{10}	$u^{20} - 3u^{19} + \cdots + 109u + 34$
c_7, c_{11}	$u^{20} - 3u^{19} + \cdots - 33u + 34$
c_{12}	$u^{20} + 31u^{19} + \cdots + 32843u + 1156$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{20} - 13y^{19} + \cdots - 93409y + 256$
c_2, c_5	$y^{20} + 15y^{19} + \cdots - 353y + 16$
c_3, c_8	$y^{20} + 71y^{19} + \cdots + 13893632y + 4194304$
c_6, c_9, c_{10}	$y^{20} + 3y^{19} + \cdots + 30619y + 1156$
c_7, c_{11}	$y^{20} + 31y^{19} + \cdots + 32843y + 1156$
c_{12}	$y^{20} - 73y^{19} + \cdots - 208085985y + 1336336$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.016951 + 0.789231I$ $a = -0.147460 - 1.134770I$ $b = 0.508184 + 0.603985I$	$1.11325 + 1.38275I$	$7.09119 - 4.02054I$
$u = -0.016951 - 0.789231I$ $a = -0.147460 + 1.134770I$ $b = 0.508184 - 0.603985I$	$1.11325 - 1.38275I$	$7.09119 + 4.02054I$
$u = -0.409805 + 0.654210I$ $a = 0.913159 - 0.159905I$ $b = -0.266779 + 0.021705I$	$0.11722 + 1.46637I$	$1.49691 - 4.73539I$
$u = -0.409805 - 0.654210I$ $a = 0.913159 + 0.159905I$ $b = -0.266779 - 0.021705I$	$0.11722 - 1.46637I$	$1.49691 + 4.73539I$
$u = 0.154412 + 0.621344I$ $a = -1.91384 - 1.58582I$ $b = 0.530147 - 0.944937I$	$0.12177 - 2.86051I$	$4.18275 - 0.60909I$
$u = 0.154412 - 0.621344I$ $a = -1.91384 + 1.58582I$ $b = 0.530147 + 0.944937I$	$0.12177 + 2.86051I$	$4.18275 + 0.60909I$
$u = -0.18250 + 1.41448I$ $a = 1.66337 + 0.44996I$ $b = -0.729471 - 0.781970I$	$7.73611 + 5.17350I$	$7.90966 - 4.84500I$
$u = -0.18250 - 1.41448I$ $a = 1.66337 - 0.44996I$ $b = -0.729471 + 0.781970I$	$7.73611 - 5.17350I$	$7.90966 + 4.84500I$
$u = -0.120113 + 0.255851I$ $a = 2.56623 + 3.01463I$ $b = 0.203906 + 0.753665I$	$-1.66738 + 1.58596I$	$-6.75642 - 4.62170I$
$u = -0.120113 - 0.255851I$ $a = 2.56623 - 3.01463I$ $b = 0.203906 - 0.753665I$	$-1.66738 - 1.58596I$	$-6.75642 + 4.62170I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.57886 + 1.65257I$ $a = 1.15768 - 1.00754I$ $b = -0.73327 + 1.21762I$	$6.46005 - 0.37754I$	$1.69270 + 0.75958I$
$u = -0.57886 - 1.65257I$ $a = 1.15768 + 1.00754I$ $b = -0.73327 - 1.21762I$	$6.46005 + 0.37754I$	$1.69270 - 0.75958I$
$u = 0.83952 + 1.68636I$ $a = 1.91623 - 0.59074I$ $b = -0.80508 + 1.30894I$	$-13.2323 - 12.8519I$	$1.25558 + 5.23566I$
$u = 0.83952 - 1.68636I$ $a = 1.91623 + 0.59074I$ $b = -0.80508 - 1.30894I$	$-13.2323 + 12.8519I$	$1.25558 - 5.23566I$
$u = 1.22594 + 1.55065I$ $a = 1.69696 + 0.72298I$ $b = -1.37246 - 0.39498I$	$-10.36440 - 5.35439I$	$2.02942 + 1.66531I$
$u = 1.22594 - 1.55065I$ $a = 1.69696 - 0.72298I$ $b = -1.37246 + 0.39498I$	$-10.36440 + 5.35439I$	$2.02942 - 1.66531I$
$u = -1.85145 + 1.14515I$ $a = 0.648918 + 0.734717I$ $b = -0.25500 - 1.69562I$	$-5.65348 + 3.36046I$	$0.05819 - 1.65611I$
$u = -1.85145 - 1.14515I$ $a = 0.648918 - 0.734717I$ $b = -0.25500 + 1.69562I$	$-5.65348 - 3.36046I$	$0.05819 + 1.65611I$
$u = 2.43981 + 0.93238I$ $a = 0.616388 + 1.146420I$ $b = -0.58018 - 1.86831I$	$-17.5295 + 2.0815I$	$-60.10 - 0.732251I$
$u = 2.43981 - 0.93238I$ $a = 0.616388 - 1.146420I$ $b = -0.58018 + 1.86831I$	$-17.5295 - 2.0815I$	$-60.10 + 0.732251I$

II.

$$\boldsymbol{I_2^u = \langle -u^2a - u^2 + b - a - 1,\ 2u^3a - u^3 + \cdots + 2a + 3,\ u^4 - u^3 + 3u^2 - 2u + 1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a \\ u^2a + u^2 + a + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^2a + \frac{1}{2}u^3 - 2u^2 + \frac{3}{2}u - \frac{1}{2} \\ u^2a + u^2 + a \end{pmatrix}$$

$$a_3 = \begin{pmatrix} \frac{1}{2}u^3 - u^2 + a + \frac{3}{2}u - \frac{1}{2} \\ u^2a + u^2 + a \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{2}u^3 - u^2 + a + \frac{3}{2}u - \frac{1}{2} \\ u^2a + u^2 + a \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^2 - 1 \\ u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{7}{2}u^3a - u^2a - \frac{1}{2}u^3 - \frac{11}{2}au - 3u^2 - \frac{7}{2}a + \frac{11}{2}u - \frac{11}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5	$(u^2 - u + 1)^4$
c_2	$(u^2 + u + 1)^4$
c_3, c_8	u^8
c_6	$(u^4 - u^3 + 3u^2 - 2u + 1)^2$
c_7	$(u^4 - u^3 + u^2 + 1)^2$
c_9, c_{10}, c_{12}	$(u^4 + u^3 + 3u^2 + 2u + 1)^2$
c_{11}	$(u^4 + u^3 + u^2 + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_5	$(y^2 + y + 1)^4$
c_3, c_8	y^8
c_6, c_9, c_{10} c_{12}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^2$
c_7, c_{11}	$(y^4 + y^3 + 3y^2 + 2y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.395123 + 0.506844I$ $a = -0.893973 - 1.010300I$ $b = 0.500000 - 0.866025I$	$-0.21101 - 3.44499I$	$-2.28131 + 9.48913I$
$u = 0.395123 + 0.506844I$ $a = -0.178069 + 0.596972I$ $b = 0.500000 + 0.866025I$	$-0.211005 + 0.614778I$	$0.065036 - 0.652246I$
$u = 0.395123 - 0.506844I$ $a = -0.893973 + 1.010300I$ $b = 0.500000 + 0.866025I$	$-0.21101 + 3.44499I$	$-2.28131 - 9.48913I$
$u = 0.395123 - 0.506844I$ $a = -0.178069 - 0.596972I$ $b = 0.500000 - 0.866025I$	$-0.211005 - 0.614778I$	$0.065036 + 0.652246I$
$u = 0.10488 + 1.55249I$ $a = -1.202340 - 0.666019I$ $b = 0.500000 + 0.866025I$	$6.79074 - 1.13408I$	$4.18309 + 3.88645I$
$u = 0.10488 + 1.55249I$ $a = -1.47562 + 0.50824I$ $b = 0.500000 - 0.866025I$	$6.79074 - 5.19385I$	$-0.84181 + 3.92087I$
$u = 0.10488 - 1.55249I$ $a = -1.202340 + 0.666019I$ $b = 0.500000 - 0.866025I$	$6.79074 + 1.13408I$	$4.18309 - 3.88645I$
$u = 0.10488 - 1.55249I$ $a = -1.47562 - 0.50824I$ $b = 0.500000 + 0.866025I$	$6.79074 + 5.19385I$	$-0.84181 - 3.92087I$

III.

$\boldsymbol{I_3^u = \langle 16a^3u - 67a^2u + \cdots - 36a + 91,\ -3a^3u + 14a^2u + \cdots - 5a - 5,\ u^2 + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a \\ -0.262295a^3u + 1.09836a^2u + \cdots + 0.590164a - 1.49180 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.557377a^3u + 1.45902a^2u + \cdots + 4.75410a - 4.29508 \\ 0.0983607a^3u + 0.213115a^2u + \cdots - 0.721311a - 0.0655738 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.196721a^3u + 0.426230a^2u + \cdots - 1.44262a - 0.131148 \\ -0.475410a^3u + 0.803279a^2u + \cdots + 3.81967a - 3.01639 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.114754a^3u + 0.0819672a^2u + \cdots - 2.50820a + 0.590164 \\ -0.114754a^3u - 0.0819672a^2u + \cdots + 2.50820a - 0.590164 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.459016a^3u + 1.67213a^2u + \cdots + 4.03279a - 4.36066 \\ 0.0983607a^3u + 0.213115a^2u + \cdots - 0.721311a - 0.0655738 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.262295a^3u - 1.09836a^2u + \cdots - 1.59016a + 3.49180 \\ -0.262295a^3u + 1.09836a^2u + \cdots + 1.59016a - 2.49180 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.114754a^3u + 0.0819672a^2u + \cdots - 2.50820a + 0.590164 \\ -0.114754a^3u - 0.0819672a^2u + \cdots + 2.50820a - 0.590164 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{40}{61}a^3u + \frac{48}{61}a^3 - \frac{320}{61}a^2u - \frac{140}{61}a^2 + \frac{840}{61}au + \frac{32}{61}a - \frac{944}{61}u + \frac{380}{61}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$(u^4 - u^3 + 3u^2 - 2u + 1)^2$
c_2	$(u^4 - u^3 + u^2 + 1)^2$
c_3, c_8	$u^8 - 5u^6 + 7u^4 - 2u^2 + 1$
c_5	$(u^4 + u^3 + u^2 + 1)^2$
c_6, c_7, c_9 c_{10}, c_{11}	$(u^2 + 1)^4$
c_{12}	$(u + 1)^8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^2$
c_2, c_5	$(y^4 + y^3 + 3y^2 + 2y + 1)^2$
c_3, c_8	$(y^4 - 5y^3 + 7y^2 - 2y + 1)^2$
c_6, c_7, c_9 c_{10}, c_{11}	$(y + 1)^8$
c_{12}	$(y - 1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = 1.04872 + 1.17889I$ $b = 0.351808 + 0.720342I$	$-0.21101 + 1.41510I$	$0.17326 - 4.90874I$
$u = 1.000000I$ $a = 1.52617 - 1.31052I$ $b = -0.851808 + 0.911292I$	$6.79074 - 3.16396I$	$3.82674 + 2.56480I$
$u = 1.000000I$ $a = 2.17745 + 0.51206I$ $b = -0.851808 - 0.911292I$	$6.79074 + 3.16396I$	$3.82674 - 2.56480I$
$u = 1.000000I$ $a = 0.24766 + 2.61957I$ $b = 0.351808 - 0.720342I$	$-0.21101 - 1.41510I$	$0.17326 + 4.90874I$
$u = -1.000000I$ $a = 1.04872 - 1.17889I$ $b = 0.351808 - 0.720342I$	$-0.21101 - 1.41510I$	$0.17326 + 4.90874I$
$u = -1.000000I$ $a = 1.52617 + 1.31052I$ $b = -0.851808 - 0.911292I$	$6.79074 + 3.16396I$	$3.82674 - 2.56480I$
$u = -1.000000I$ $a = 2.17745 - 0.51206I$ $b = -0.851808 + 0.911292I$	$6.79074 - 3.16396I$	$3.82674 + 2.56480I$
$u = -1.000000I$ $a = 0.24766 - 2.61957I$ $b = 0.351808 + 0.720342I$	$-0.21101 + 1.41510I$	$0.17326 - 4.90874I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4	$(u^2-u+1)^4(u^4-u^3+3u^2-2u+1)^2$ $\cdot(u^{20}+15u^{19}+\cdots-353u+16)$
c_2	$((u^2+u+1)^4)(u^4-u^3+u^2+1)^2(u^{20}+7u^{19}+\cdots+35u+4)$
c_3, c_8	$u^8(u^8-5u^6+\cdots-2u^2+1)(u^{20}-u^{19}+\cdots+2560u+2048)$
c_5	$((u^2-u+1)^4)(u^4+u^3+u^2+1)^2(u^{20}+7u^{19}+\cdots+35u+4)$
c_6	$((u^2+1)^4)(u^4-u^3+3u^2-2u+1)^2(u^{20}-3u^{19}+\cdots+109u+34)$
c_7	$((u^2+1)^4)(u^4-u^3+u^2+1)^2(u^{20}-3u^{19}+\cdots-33u+34)$
c_9, c_{10}	$((u^2+1)^4)(u^4+u^3+3u^2+2u+1)^2(u^{20}-3u^{19}+\cdots+109u+34)$
c_{11}	$((u^2+1)^4)(u^4+u^3+u^2+1)^2(u^{20}-3u^{19}+\cdots-33u+34)$
c_{12}	$(u+1)^8(u^4+u^3+3u^2+2u+1)^2$ $\cdot(u^{20}+31u^{19}+\cdots+32843u+1156)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^2+y+1)^4(y^4+5y^3+7y^2+2y+1)^2$ $\cdot\,(y^{20}-13y^{19}+\cdots-93409y+256)$
c_2, c_5	$(y^2+y+1)^4(y^4+y^3+3y^2+2y+1)^2$ $\cdot\,(y^{20}+15y^{19}+\cdots-353y+16)$
c_3, c_8	$y^8(y^4-5y^3+7y^2-2y+1)^2$ $\cdot\,(y^{20}+71y^{19}+\cdots+13893632y+4194304)$
c_6, c_9, c_{10}	$(y+1)^8(y^4+5y^3+7y^2+2y+1)^2$ $\cdot\,(y^{20}+3y^{19}+\cdots+30619y+1156)$
c_7, c_{11}	$(y+1)^8(y^4+y^3+3y^2+2y+1)^2$ $\cdot\,(y^{20}+31y^{19}+\cdots+32843y+1156)$
c_{12}	$(y-1)^8(y^4+5y^3+7y^2+2y+1)^2$ $\cdot\,(y^{20}-73y^{19}+\cdots-208085985y+1336336)$