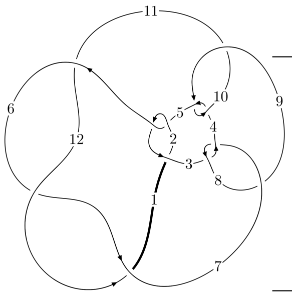
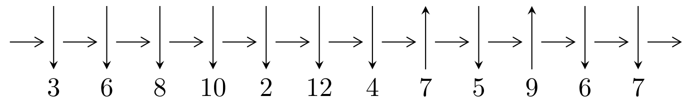
$12n_{0496}$ ($K12n_{0496}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 3u^{12} + u^{11} + 4u^{10} - 5u^9 + 3u^8 - u^7 + 3u^6 - 5u^5 - 7u^4 + 2u^2 + 8b + 8u + 6, \\
& - u^{11} - 2u^9 + u^8 - 4u^7 + u^6 - 4u^5 + 5u^4 - 2u^3 + 4u^2 + 4a - 2u + 2, \\
& u^{13} + 3u^{11} - 3u^{10} + 6u^9 - 6u^8 + 10u^7 - 10u^6 + 8u^5 - 9u^4 + 6u^3 - 2u^2 + 2u + 2\rangle \\
I_2^u = \langle & -12498270u^{19} - 27347075u^{18} + \cdots + 27481697b - 99369926, \\
& - 80173179u^{19} - 177871512u^{18} + \cdots + 274816970a - 993207167,\ u^{20} + 3u^{19} + \cdots + 18u + 5\rangle \\
I_3^u = \langle & -u^6 - 2u^4 - u^2a - u^3 - 2u^2 + b - a - u, \\
& 2u^6a + 2u^5a + 3u^6 + 6u^4a + u^5 + 4u^3a + 5u^4 + 8u^2a + 4u^3 + 2a^2 + 4au + 6u^2 + 2a + u - 1, \\
& u^7 + 2u^5 + u^4 + 2u^3 + u^2 + 1\rangle \\
I_4^u = \langle & b + 1,\ -u^2 + 2a + u + 2,\ u^4 + u^2 + 2\rangle \\
I_5^u = \langle & -u^{11} + u^{10} - 4u^9 + 4u^8 - 7u^7 + 7u^6 - 5u^5 + 5u^4 - u^2a - u^3 + u^2 + b - a,\ 2u^{11} - u^{10} + \cdots + a^2 + 2, \\
& u^{12} - u^{11} + 4u^{10} - 4u^9 + 7u^8 - 7u^7 + 5u^6 - 5u^5 + u^4 - u^3 + 1\rangle \\
I_6^u = \langle & b + u,\ 2a - u + 1,\ u^2 + 1\rangle \\
I_7^u = \langle & b - 1,\ u^3 + u^2 + 2a + u - 3,\ u^4 + 1\rangle
\end{aligned}$$

$$I_1^v = \langle a,\ b - 1,\ v + 1\rangle$$

* 8 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 82 representations.

[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

I.

$$\boldsymbol{I_1^u = \langle 3u^{12}+u^{11}+\cdots+8b+6,\ -u^{11}-2u^9+\cdots+4a+2,\ u^{13}+3u^{11}+\cdots+2u+2\rangle}$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2+1 \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} \frac{1}{4}u^{11} + \frac{1}{2}u^9 + \cdots + \frac{1}{2}u - \frac{1}{2} \\ -\frac{3}{8}u^{12} - \frac{1}{8}u^{11} + \cdots - u - \frac{3}{4} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{3}{8}u^{12} + \frac{3}{8}u^{11} + \cdots + \frac{3}{2}u + \frac{1}{4} \\ -\frac{3}{8}u^{12} - \frac{1}{8}u^{11} + \cdots - u - \frac{3}{4} \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{4}u^{11} + \frac{1}{2}u^9 + \cdots - \frac{1}{2}u + \frac{1}{2} \\ -\frac{3}{8}u^{12} + \frac{3}{8}u^{11} + \cdots - \frac{5}{4}u^2 + \frac{1}{4} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{1}{4}u^{11} - \frac{1}{2}u^9 + \cdots + \frac{1}{2}u - \frac{1}{2} \\ -\frac{1}{8}u^{12} - \frac{3}{8}u^{11} + \cdots - \frac{3}{4}u^2 - \frac{1}{4} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ -\frac{1}{2}u^{12} + \frac{1}{2}u^{11} + \cdots + u + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^4 - u^2 - 1 \\ -\frac{1}{2}u^{12} - \frac{1}{2}u^{11} + \cdots - 2u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1 \\ -\frac{1}{2}u^{12} - \frac{1}{2}u^{11} + \cdots - 2u - 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= \frac{1}{2}u^{12} + \frac{5}{2}u^{11} + \frac{9}{2}u^9 - \frac{13}{2}u^8 + \frac{21}{2}u^7 - \frac{21}{2}u^6 + \frac{25}{2}u^5 - \frac{39}{2}u^4 + 10u^3 - 9u^2 + 8u - 9$

in decimal forms when there is not enough margin.

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{13} + u^{12} + \cdots + 45u + 4$
c_2, c_5, c_6 c_{11}, c_{12}	$u^{13} + 3u^{12} + \cdots + 3u + 2$
c_3, c_4, c_7 c_9	$u^{13} + 3u^{11} + \cdots + 2u + 2$
c_8, c_{10}	$u^{13} - 6u^{12} + \cdots + 12u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{13} + 11y^{12} + \cdots + 913y - 16$
c_2, c_5, c_6 c_{11}, c_{12}	$y^{13} - y^{12} + \cdots + 45y - 4$
c_3, c_4, c_7 c_9	$y^{13} + 6y^{12} + \cdots + 12y - 4$
c_8, c_{10}	$y^{13} + 6y^{12} + \cdots + 592y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.929226 + 0.280059I$ $a = -1.57901 + 0.35078I$ $b = -1.020380 + 0.665255I$	$-0.97155 + 5.22971I$	$-12.23690 - 3.97423I$
$u = 0.929226 - 0.280059I$ $a = -1.57901 - 0.35078I$ $b = -1.020380 - 0.665255I$	$-0.97155 - 5.22971I$	$-12.23690 + 3.97423I$
$u = 0.167516 + 0.866699I$ $a = -0.245529 + 0.584083I$ $b = 0.173060 - 1.267070I$	$4.28319 - 0.90080I$	$-9.45658 + 7.47152I$
$u = 0.167516 - 0.866699I$ $a = -0.245529 - 0.584083I$ $b = 0.173060 + 1.267070I$	$4.28319 + 0.90080I$	$-9.45658 - 7.47152I$
$u = 0.796399 + 0.915905I$ $a = 1.57817 - 0.32207I$ $b = 0.871377 + 0.416192I$	$-3.44917 - 7.30520I$	$-10.1022 + 10.2949I$
$u = 0.796399 - 0.915905I$ $a = 1.57817 + 0.32207I$ $b = 0.871377 - 0.416192I$	$-3.44917 + 7.30520I$	$-10.1022 - 10.2949I$
$u = -0.369074 + 1.182800I$ $a = 0.137445 + 0.036300I$ $b = -0.850920 - 1.124830I$	$8.13648 + 2.11284I$	$-3.39753 - 3.18179I$
$u = -0.369074 - 1.182800I$ $a = 0.137445 - 0.036300I$ $b = -0.850920 + 1.124830I$	$8.13648 - 2.11284I$	$-3.39753 + 3.18179I$
$u = -0.741404 + 0.995026I$ $a = 1.037390 + 0.553915I$ $b = 0.730597 + 0.204654I$	$-2.95235 + 4.56373I$	$-7.10603 - 0.26574I$
$u = -0.741404 - 0.995026I$ $a = 1.037390 - 0.553915I$ $b = 0.730597 - 0.204654I$	$-2.95235 - 4.56373I$	$-7.10603 + 0.26574I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.577273 + 1.253670I$ $a = -1.44865 - 1.14989I$ $b = -1.22052 + 0.78529I$	$5.1437 + 16.4022I$	$-7.06197 - 9.59363I$
$u = -0.577273 - 1.253670I$ $a = -1.44865 + 1.14989I$ $b = -1.22052 - 0.78529I$	$5.1437 - 16.4022I$	$-7.06197 + 9.59363I$
$u = -0.410781$ $a = -0.959635$ $b = -0.366431$	-0.641398	-15.2780

II.
$$\boldsymbol{I_2^u = \langle -1.25\times 10^7u^{19} - 2.73\times 10^7u^{18} + \cdots + 2.75\times 10^7b - 9.94\times 10^7,\ -8.02\times 10^7u^{19} - 1.78\times 10^8u^{18} + \cdots + 2.75\times 10^8a - 9.93\times 10^8,\ u^{20} + 3u^{19} + \cdots + 18u + 5\rangle}$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^2+1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.291733u^{19} + 0.647236u^{18} + \cdots + 4.92689u + 3.61407 \\ 0.454785u^{19} + 0.995101u^{18} + \cdots + 7.42465u + 3.61586 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.163052u^{19} - 0.347865u^{18} + \cdots - 2.49775u - 0.00179062 \\ 0.454785u^{19} + 0.995101u^{18} + \cdots + 7.42465u + 3.61586 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.864463u^{19} - 1.98643u^{18} + \cdots - 16.6818u - 6.40771 \\ -0.595689u^{19} - 1.29703u^{18} + \cdots - 9.53604u - 3.85004 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.653089u^{19} - 1.43379u^{18} + \cdots - 9.37011u - 2.98023 \\ -0.349978u^{19} - 0.737864u^{18} + \cdots - 3.91291u - 1.28352 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.821168u^{19} - 2.00657u^{18} + \cdots - 18.8114u - 8.21548 \\ -0.621168u^{19} - 1.40657u^{18} + \cdots - 10.8114u - 4.61548 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.361356u^{19} - 0.786551u^{18} + \cdots - 5.44322u + 0.633834 \\ 0.104807u^{19} + 0.257238u^{18} + \cdots + 2.51174u + 2.33233 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.923097u^{19} - 2.14812u^{18} + \cdots - 14.5205u - 4.80434 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{7065492}{27481697}u^{19} - \frac{31839998}{27481697}u^{18} + \cdots + \frac{103205694}{27481697}u - \frac{125331692}{27481697}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{10}+3u^9+11u^8+18u^7+33u^6+32u^5+34u^4+18u^3+8u^2+u+1)^2$
c_2, c_5, c_6 c_{11}, c_{12}	$(u^{10}-u^9-u^8+2u^7+3u^6-4u^5+4u^3-u+1)^2$
c_3, c_4, c_7 c_9	$u^{20}+3u^{19}+\cdots+18u+5$
c_8, c_{10}	$u^{20}-11u^{19}+\cdots-76u+25$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{10} + 13y^9 + \cdots + 15y + 1)^2$
c_2, c_5, c_6 c_{11}, c_{12}	$(y^{10} - 3y^9 + 11y^8 - 18y^7 + 33y^6 - 32y^5 + 34y^4 - 18y^3 + 8y^2 - y + 1)^2$
c_3, c_4, c_7 c_9	$y^{20} + 11y^{19} + \cdots + 76y + 25$
c_8, c_{10}	$y^{20} - 5y^{19} + \cdots - 2276y + 625$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.979461 + 0.188210I$ $a = 1.59751 + 0.26897I$ $b = 1.142330 + 0.733576I$	$1.87405 - 10.79660I$	$-9.84814 + 6.97307I$
$u = -0.979461 - 0.188210I$ $a = 1.59751 - 0.26897I$ $b = 1.142330 - 0.733576I$	$1.87405 + 10.79660I$	$-9.84814 - 6.97307I$
$u = -0.843090 + 0.709533I$ $a = -1.51303 - 0.11033I$ $b = -0.773203 + 0.317670I$	$-3.82303 + 1.33139I$	$-9.94848 - 5.33149I$
$u = -0.843090 - 0.709533I$ $a = -1.51303 + 0.11033I$ $b = -0.773203 - 0.317670I$	$-3.82303 - 1.33139I$	$-9.94848 + 5.33149I$
$u = 0.813642 + 0.789464I$ $a = -1.203100 + 0.561936I$ $b = -0.773203 + 0.317670I$	$-3.82303 + 1.33139I$	$-9.94848 - 5.33149I$
$u = 0.813642 - 0.789464I$ $a = -1.203100 - 0.561936I$ $b = -0.773203 - 0.317670I$	$-3.82303 - 1.33139I$	$-9.94848 + 5.33149I$
$u = 0.004473 + 1.188620I$ $a = 0.166971 + 0.462136I$ $b = 0.351677 - 0.481849I$	$3.14663 + 1.17971I$	$-5.77268 - 5.86187I$
$u = 0.004473 - 1.188620I$ $a = 0.166971 - 0.462136I$ $b = 0.351677 + 0.481849I$	$3.14663 - 1.17971I$	$-5.77268 + 5.86187I$
$u = -0.709802 + 0.215491I$ $a = 1.80898 + 0.45664I$ $b = 0.794058 + 0.823254I$	$4.23778 - 1.45588I$	$-7.02190 + 1.71983I$
$u = -0.709802 - 0.215491I$ $a = 1.80898 - 0.45664I$ $b = 0.794058 - 0.823254I$	$4.23778 + 1.45588I$	$-7.02190 - 1.71983I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.540050 + 1.155880I$ $a = -1.79606 - 1.06825I$ $b = -1.014860 + 0.798709I$	$6.90157 + 6.23908I$	$-5.40880 - 5.42921I$
$u = -0.540050 - 1.155880I$ $a = -1.79606 + 1.06825I$ $b = -1.014860 - 0.798709I$	$6.90157 - 6.23908I$	$-5.40880 + 5.42921I$
$u = 0.256269 + 1.270830I$ $a = 0.0612993 + 0.1044580I$ $b = 0.794058 - 0.823254I$	$4.23778 + 1.45588I$	$-7.02190 - 1.71983I$
$u = 0.256269 - 1.270830I$ $a = 0.0612993 - 0.1044580I$ $b = 0.794058 + 0.823254I$	$4.23778 - 1.45588I$	$-7.02190 + 1.71983I$
$u = 0.242436 + 0.610608I$ $a = 1.73616 + 1.08804I$ $b = 0.351677 + 0.481849I$	$3.14663 - 1.17971I$	$-5.77268 + 5.86187I$
$u = 0.242436 - 0.610608I$ $a = 1.73616 - 1.08804I$ $b = 0.351677 - 0.481849I$	$3.14663 + 1.17971I$	$-5.77268 - 5.86187I$
$u = 0.595640 + 1.211330I$ $a = 1.53920 - 1.03480I$ $b = 1.142330 + 0.733576I$	$1.87405 - 10.79660I$	$-9.84814 + 6.97307I$
$u = 0.595640 - 1.211330I$ $a = 1.53920 + 1.03480I$ $b = 1.142330 - 0.733576I$	$1.87405 + 10.79660I$	$-9.84814 - 6.97307I$
$u = -0.340059 + 1.345340I$ $a = -0.0979292 - 0.0498685I$ $b = -1.014860 - 0.798709I$	$6.90157 - 6.23908I$	$-5.40880 + 5.42921I$
$u = -0.340059 - 1.345340I$ $a = -0.0979292 + 0.0498685I$ $b = -1.014860 + 0.798709I$	$6.90157 + 6.23908I$	$-5.40880 - 5.42921I$

III. $\boldsymbol{I^u_3 = \langle -u^6 - 2u^4 - u^2a - u^3 - 2u^2 + b - a - u,\ 2u^6a + 3u^6 + \cdots + 2a - 1,\ u^7 + 2u^5 + u^4 + 2u^3 + u^2 + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^2+1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a \\ u^6 + 2u^4 + u^2a + u^3 + 2u^2 + a + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^6 - 2u^4 - u^2a - u^3 - 2u^2 - u \\ u^6 + 2u^4 + u^2a + u^3 + 2u^2 + a + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^6a + u^6 + 2u^4a + 2u^4 + 2u^2a + 2u^2 - u \\ -u^5a + u^6 - 2u^3a + 2u^4 - au + 2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^6a - u^6 - 2u^4a - 2u^4 - 2u^2a - 2u^2 + u \\ -u^6a + u^5a + u^6 - u^4a + u^5 + u^3a + 2u^4 + 4u^3 + au + 2u^2 + a + 3u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -u^6 + u^5 - u^4 + 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^4 - u^2 - 1 \\ -u^6 - u^5 - 2u^4 - 2u^3 - 2u^2 - u - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1 \\ -u^6 - u^5 - u^4 - 2u^3 - 2u^2 - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^6 + 4u^5 + 4u^4 + 8u^3 + 8u^2 + 4u - 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14}+7u^{13}+\cdots+254u+121$
c_2, c_5, c_6 c_{11}, c_{12}	$u^{14}+3u^{13}+\cdots+34u+11$
c_3, c_4, c_7 c_9	$(u^7+2u^5+u^4+2u^3+u^2+1)^2$
c_8, c_{10}	$(u^7-4u^6+8u^5-7u^4+2u^3+3u^2-2u+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} + y^{13} + \cdots + 56242y + 14641$
c_2, c_5, c_6 c_{11}, c_{12}	$y^{14} - 7y^{13} + \cdots - 254y + 121$
c_3, c_4, c_7 c_9	$(y^7 + 4y^6 + 8y^5 + 7y^4 + 2y^3 - 3y^2 - 2y - 1)^2$
c_8, c_{10}	$(y^7 + 12y^5 + 3y^4 + 22y^3 - 3y^2 - 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.468927 + 1.008510I$ $a = -0.137111 - 0.945771I$ $b = -0.543255 + 0.753172I$	$-1.13946 + 6.00484I$	$-7.73392 - 8.08638I$
$u = -0.468927 + 1.008510I$ $a = 1.15206 + 0.83449I$ $b = 1.402030 - 0.105113I$	$-1.13946 + 6.00484I$	$-7.73392 - 8.08638I$
$u = -0.468927 - 1.008510I$ $a = -0.137111 + 0.945771I$ $b = -0.543255 - 0.753172I$	$-1.13946 - 6.00484I$	$-7.73392 + 8.08638I$
$u = -0.468927 - 1.008510I$ $a = 1.15206 - 0.83449I$ $b = 1.402030 + 0.105113I$	$-1.13946 - 6.00484I$	$-7.73392 + 8.08638I$
$u = -0.824481$ $a = -1.134300 + 0.394235I$ $b = -0.692469 + 0.662223I$	0.0577569	-10.7630
$u = -0.824481$ $a = -1.134300 - 0.394235I$ $b = -0.692469 - 0.662223I$	0.0577569	-10.7630
$u = 0.391915 + 0.631080I$ $a = -0.915562 - 0.479802I$ $b = -1.164390 + 0.328250I$	$-3.69786 - 1.46776I$	$-13.4123 + 4.8542I$
$u = 0.391915 + 0.631080I$ $a = 1.23572 - 1.87006I$ $b = 1.148250 + 0.342291I$	$-3.69786 - 1.46776I$	$-13.4123 + 4.8542I$
$u = 0.391915 - 0.631080I$ $a = -0.915562 + 0.479802I$ $b = -1.164390 - 0.328250I$	$-3.69786 + 1.46776I$	$-13.4123 - 4.8542I$
$u = 0.391915 - 0.631080I$ $a = 1.23572 + 1.87006I$ $b = 1.148250 - 0.342291I$	$-3.69786 + 1.46776I$	$-13.4123 - 4.8542I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.489252 + 1.239920I$ $a = -1.10571 + 0.94503I$ $b = -1.09240 - 0.92531I$	$7.27584 - 9.47458I$	$-4.47246 + 6.21855I$
$u = 0.489252 + 1.239920I$ $a = 0.404899 + 0.133299I$ $b = -0.557760 + 1.149380I$	$7.27584 - 9.47458I$	$-4.47246 + 6.21855I$
$u = 0.489252 - 1.239920I$ $a = -1.10571 - 0.94503I$ $b = -1.09240 + 0.92531I$	$7.27584 + 9.47458I$	$-4.47246 - 6.21855I$
$u = 0.489252 - 1.239920I$ $a = 0.404899 - 0.133299I$ $b = -0.557760 - 1.149380I$	$7.27584 + 9.47458I$	$-4.47246 - 6.21855I$

IV. $I_4^u = \langle b+1,\ -u^2+2a+u+2,\ u^4+u^2+2\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2+1 \\ u^2 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} \frac{1}{2}u^2 - \frac{1}{2}u \\ -1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{2}u^2 - \frac{1}{2}u \\ -1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{1}{2}u^2 + \frac{1}{2}u \\ u^3+u-1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ -u^3-u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2+2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^2 - 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.676097 + 0.978318I$ $a = -1.58805 + 0.17228I$ $b = -1.00000$	$-4.11234 - 5.33349I$	$-14.0000 + 5.2915I$
$u = \ \ 0.676097 - 0.978318I$ $a = -1.58805 - 0.17228I$ $b = -1.00000$	$-4.11234 + 5.33349I$	$-14.0000 - 5.2915I$
$u = -0.676097 + 0.978318I$ $a = -0.91195 - 1.15060I$ $b = -1.00000$	$-4.11234 + 5.33349I$	$-14.0000 - 5.2915I$
$u = -0.676097 - 0.978318I$ $a = -0.91195 + 1.15060I$ $b = -1.00000$	$-4.11234 - 5.33349I$	$-14.0000 + 5.2915I$

V.

$\boldsymbol{I_5^u = \langle -u^{11}+u^{10}+\cdots+b-a,\ 2u^{11}-u^{10}+\cdots+a^2+2,\ u^{12}-u^{11}+\cdots-u^3+1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^2+1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a \\ u^{11}-u^{10}+4u^9-4u^8+7u^7-7u^6+5u^5-5u^4+u^2a+u^3-u^2+a \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^{11}+u^{10}-4u^9+4u^8-7u^7+7u^6-5u^5+5u^4-u^2a-u^3+u^2 \\ u^{11}-u^{10}+4u^9-4u^8+7u^7-7u^6+5u^5-5u^4+u^2a+u^3-u^2+a \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^{11}a-u^{10}a+\cdots+u+2 \\ -u^5a+u^6-2u^3a+2u^4-au+2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^{11}+u^{10}+\cdots+u^2+2u \\ u^{11}-u^{10}+\cdots+a+2u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^{10}+3u^8+4u^6+u^4-u^2-1 \\ u^{11}+4u^9-u^8+7u^7-3u^6+5u^5-4u^4+u^3-2u^2-1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^7+2u^5+2u^3 \\ u^9+3u^7+3u^5-u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^{11}-4u^9-6u^7-2u^5+3u^3+2u+1 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^9-12u^7-12u^5+4u^3+8u-6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{12}+5u^{11}+\cdots+40u+9)^2$
c_2, c_5, c_6 c_{11}, c_{12}	$(u^{12}-u^{11}-2u^{10}+4u^9+u^8-5u^7-u^6+7u^5-u^4-9u^3+6u^2+2u-3)^2$
c_3, c_4, c_7 c_9	$(u^{12}-u^{11}+4u^{10}-4u^9+7u^8-7u^7+5u^6-5u^5+u^4-u^3+1)^2$
c_8, c_{10}	$(u^{12}-7u^{11}+\cdots+2u^2+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{12} + 3y^{11} + \cdots - 196y + 81)^2$
c_2, c_5, c_6 c_{11}, c_{12}	$(y^{12} - 5y^{11} + \cdots - 40y + 9)^2$
c_3, c_4, c_7 c_9	$(y^{12} + 7y^{11} + \cdots + 2y^2 + 1)^2$
c_8, c_{10}	$(y^{12} - 5y^{11} + \cdots + 4y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.386547 + 0.899125I$ $a = -1.49862 + 0.55245I$ $b = -1.298590 + 0.085372I$	$-2.96024 - 1.97241I$	$-11.42428 + 3.68478I$
$u = 0.386547 + 0.899125I$ $a = 0.16732 - 1.65718I$ $b = 0.805413 + 0.489916I$	$-2.96024 - 1.97241I$	$-11.42428 + 3.68478I$
$u = 0.386547 - 0.899125I$ $a = -1.49862 - 0.55245I$ $b = -1.298590 - 0.085372I$	$-2.96024 + 1.97241I$	$-11.42428 - 3.68478I$
$u = 0.386547 - 0.899125I$ $a = 0.16732 + 1.65718I$ $b = 0.805413 - 0.489916I$	$-2.96024 + 1.97241I$	$-11.42428 - 3.68478I$
$u = -0.206575 + 1.062080I$ $a = 2.35205 - 1.46291I$ $b = -0.666209$	0.738851	$-2.58322 + 0.I$
$u = -0.206575 + 1.062080I$ $a = 1.57640 + 2.52499I$ $b = 1.14988$	0.738851	$-2.58322 + 0.I$
$u = -0.206575 - 1.062080I$ $a = 2.35205 + 1.46291I$ $b = -0.666209$	0.738851	$-2.58322 + 0.I$
$u = -0.206575 - 1.062080I$ $a = 1.57640 - 2.52499I$ $b = 1.14988$	0.738851	$-2.58322 + 0.I$
$u = 0.869654 + 0.049931I$ $a = 0.988080 + 0.457240I$ $b = 0.547085 + 0.953523I$	$3.69558 + 4.59213I$	$-7.41886 - 3.20482I$
$u = 0.869654 + 0.049931I$ $a = 1.181660 - 0.546728I$ $b = 0.973781 - 0.790428I$	$3.69558 + 4.59213I$	$-7.41886 - 3.20482I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.869654 - 0.049931I$ $a = 0.988080 - 0.457240I$ $b = 0.547085 - 0.953523I$	$3.69558 - 4.59213I$	$-7.41886 + 3.20482I$
$u = 0.869654 - 0.049931I$ $a = 1.181660 + 0.546728I$ $b = 0.973781 + 0.790428I$	$3.69558 - 4.59213I$	$-7.41886 + 3.20482I$
$u = -0.460851 + 1.226450I$ $a = 1.09714 + 0.90713I$ $b = 0.973781 - 0.790428I$	$3.69558 + 4.59213I$	$-7.41886 - 3.20482I$
$u = -0.460851 + 1.226450I$ $a = -0.257899 + 0.179897I$ $b = 0.547085 + 0.953523I$	$3.69558 + 4.59213I$	$-7.41886 - 3.20482I$
$u = -0.460851 - 1.226450I$ $a = 1.09714 - 0.90713I$ $b = 0.973781 + 0.790428I$	$3.69558 - 4.59213I$	$-7.41886 + 3.20482I$
$u = -0.460851 - 1.226450I$ $a = -0.257899 - 0.179897I$ $b = 0.547085 - 0.953523I$	$3.69558 - 4.59213I$	$-7.41886 + 3.20482I$
$u = 0.436607 + 1.253750I$ $a = -1.14929 + 0.87685I$ $b = -0.769522 - 0.881187I$	7.66009	$-3.73050 + 0.I$
$u = 0.436607 + 1.253750I$ $a = 0.286388 + 0.376891I$ $b = -0.769522 + 0.881187I$	7.66009	$-3.73050 + 0.I$
$u = 0.436607 - 1.253750I$ $a = -1.14929 - 0.87685I$ $b = -0.769522 + 0.881187I$	7.66009	$-3.73050 + 0.I$
$u = 0.436607 - 1.253750I$ $a = 0.286388 - 0.376891I$ $b = -0.769522 - 0.881187I$	7.66009	$-3.73050 + 0.I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.525382 + 0.335320I$ $a = -0.341666 - 0.424256I$ $b = 0.805413 + 0.489916I$	$-2.96024 - 1.97241I$	$-11.42428 + 3.68478I$
$u = -0.525382 + 0.335320I$ $a = -1.90157 - 1.24427I$ $b = -1.298590 + 0.085372I$	$-2.96024 - 1.97241I$	$-11.42428 + 3.68478I$
$u = -0.525382 - 0.335320I$ $a = -0.341666 + 0.424256I$ $b = 0.805413 - 0.489916I$	$-2.96024 + 1.97241I$	$-11.42428 - 3.68478I$
$u = -0.525382 - 0.335320I$ $a = -1.90157 + 1.24427I$ $b = -1.298590 - 0.085372I$	$-2.96024 + 1.97241I$	$-11.42428 - 3.68478I$

VI. $I_6^u = \langle b+u,\ 2a-u+1,\ u^2+1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{1}{2}u - \frac{1}{2} \\ -u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{3}{2}u - \frac{1}{2} \\ -u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{1}{2}u + \frac{1}{2} \\ 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{2}u - \frac{1}{2} \\ -u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ 2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -1 \\ -2u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1 \\ -2u-1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.500000 + 0.500000I$ $b = -1.000000I$	4.93480	0
$u = -1.000000I$ $a = -0.500000 - 0.500000I$ $b = 1.000000I$	4.93480	0

VII. $\boldsymbol{I_7^u = \langle b-1,\ u^3+u^2+2a+u-3,\ u^4+1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^2+1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{1}{2}u^3-\frac{1}{2}u^2-\frac{1}{2}u+\frac{3}{2} \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{1}{2}u^3-\frac{1}{2}u^2-\frac{1}{2}u+\frac{1}{2} \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{2}u^3+\frac{1}{2}u^2+\frac{1}{2}u-\frac{1}{2} \\ -1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{2}u^3-\frac{1}{2}u^2+\frac{1}{2}u+\frac{1}{2} \\ u^3+u+1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.707107 + 0.707107I$ $a = 1.50000 - 1.20711I$ $b = 1.00000$	-4.93480	-16.0000
$u = 0.707107 - 0.707107I$ $a = 1.50000 + 1.20711I$ $b = 1.00000$	-4.93480	-16.0000
$u = -0.707107 + 0.707107I$ $a = 1.50000 - 0.20711I$ $b = 1.00000$	-4.93480	-16.0000
$u = -0.707107 - 0.707107I$ $a = 1.50000 + 0.20711I$ $b = 1.00000$	-4.93480	-16.0000

VIII. $I_1^v = \langle a,\ b-1,\ v+1 \rangle$

(i) Arc colorings

$a_4 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$

$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_{12} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$

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

$a_3 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$

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

$a_2 = \begin{pmatrix} -2 \\ 1 \end{pmatrix}$

$a_5 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$

$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_6	$u-1$
c_3, c_4, c_7 c_8, c_9, c_{10}	u
c_5, c_{11}, c_{12}	$u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5 c_6, c_{11}, c_{12}	$y-1$
c_3, c_4, c_7 c_8, c_9, c_{10}	y

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = 1.00000$	-3.28987	-12.0000

IX. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^9(u+1)^2$ $\cdot(u^{10}+3u^9+11u^8+18u^7+33u^6+32u^5+34u^4+18u^3+8u^2+u+1)^2$ $\cdot((u^{12}+5u^{11}+\cdots+40u+9)^2)(u^{13}+u^{12}+\cdots+45u+4)$ $\cdot(u^{14}+7u^{13}+\cdots+254u+121)$
c_2, c_6	$(u-1)^5(u+1)^4(u^2+1)$ $\cdot(u^{10}-u^9-u^8+2u^7+3u^6-4u^5+4u^3-u+1)^2$ $\cdot(u^{12}-u^{11}-2u^{10}+4u^9+u^8-5u^7-u^6+7u^5-u^4-9u^3+6u^2+2u-3)^2$ $\cdot(u^{13}+3u^{12}+\cdots+3u+2)(u^{14}+3u^{13}+\cdots+34u+11)$
c_3, c_4, c_7 c_9	$u(u^2+1)(u^4+1)(u^4+u^2+2)(u^7+2u^5+u^4+2u^3+u^2+1)^2$ $\cdot(u^{12}-u^{11}+4u^{10}-4u^9+7u^8-7u^7+5u^6-5u^5+u^4-u^3+1)^2$ $\cdot(u^{13}+3u^{11}+\cdots+2u+2)(u^{20}+3u^{19}+\cdots+18u+5)$
c_5, c_{11}, c_{12}	$(u-1)^4(u+1)^5(u^2+1)$ $\cdot(u^{10}-u^9-u^8+2u^7+3u^6-4u^5+4u^3-u+1)^2$ $\cdot(u^{12}-u^{11}-2u^{10}+4u^9+u^8-5u^7-u^6+7u^5-u^4-9u^3+6u^2+2u-3)^2$ $\cdot(u^{13}+3u^{12}+\cdots+3u+2)(u^{14}+3u^{13}+\cdots+34u+11)$
c_8, c_{10}	$u(u-1)^2(u^2+1)^2(u^2-u+2)^2$ $\cdot(u^7-4u^6+8u^5-7u^4+2u^3+3u^2-2u+1)^2$ $\cdot((u^{12}-7u^{11}+\cdots+2u^2+1)^2)(u^{13}-6u^{12}+\cdots+12u+4)$ $\cdot(u^{20}-11u^{19}+\cdots-76u+25)$

X. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^{11})(y^{10}+13y^9+\cdots+15y+1)^2$ $\cdot((y^{12}+3y^{11}+\cdots-196y+81)^2)(y^{13}+11y^{12}+\cdots+913y-16)$ $\cdot(y^{14}+y^{13}+\cdots+56242y+14641)$
c_2, c_5, c_6 c_{11}, c_{12}	$(y-1)^9(y+1)^2$ $\cdot(y^{10}-3y^9+11y^8-18y^7+33y^6-32y^5+34y^4-18y^3+8y^2-y+1)^2$ $\cdot((y^{12}-5y^{11}+\cdots-40y+9)^2)(y^{13}-y^{12}+\cdots+45y-4)$ $\cdot(y^{14}-7y^{13}+\cdots-254y+121)$
c_3, c_4, c_7 c_9	$y(y+1)^2(y^2+1)^2(y^2+y+2)^2$ $\cdot(y^7+4y^6+8y^5+7y^4+2y^3-3y^2-2y-1)^2$ $\cdot((y^{12}+7y^{11}+\cdots+2y^2+1)^2)(y^{13}+6y^{12}+\cdots+12y-4)$ $\cdot(y^{20}+11y^{19}+\cdots+76y+25)$
c_8, c_{10}	$y(y-1)^2(y+1)^4(y^2+3y+4)^2$ $\cdot(y^7+12y^5+3y^4+22y^3-3y^2-2y-1)^2$ $\cdot((y^{12}-5y^{11}+\cdots+4y+1)^2)(y^{13}+6y^{12}+\cdots+592y-16)$ $\cdot(y^{20}-5y^{19}+\cdots-2276y+625)$