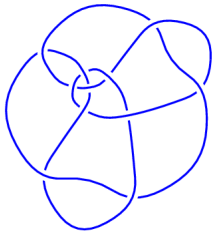
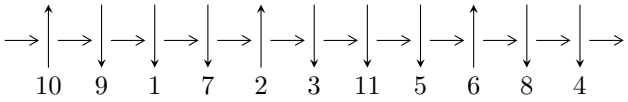
$11a_{271}$ $(K11a_{271})$



1

Arc Sequences



Solving Sequence

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

Representation Ideals

$$I = \bigcap_{i=1}^{5} I_i^u$$

$I_1^u = \langle u^2 + u + 1,\ a + 1,\ b - 1 \rangle$

$I_2^u = \langle u^{10} + 2u^9 + 3u^8 + 3u^7 + 5u^6 + 6u^5 + 3u^4 + 3u^3 + 3u^2 + u + 1,$
$-u^9 - 17u^8 - 41u^7 - 60u^6 - 68u^5 - 96u^4 - 110u^3 - 72u^2 + 31b - 29u - 33,$
$30u^9 + 76u^8 + 114u^7 + 126u^6 + 180u^5 + 245u^4 + 138u^3 + 83u^2 + 31a + 95u + 29 \rangle$

$I_3^u = \langle u^8 - 2u^7 + 2u^6 - u^5 + 4u^4 - 4u^3 + u^2 - u + 1,\ a + 1,\ u^7 - 4u^6 + 5u^5 - u^4 + u^3 - 6u^2 + 5b + 3u + 3 \rangle$

$I_4^u = \langle u^{23} + u^{22} + \cdots - u - 1,\ a - 1,$
$13836209641757u^{22} + 11133241477660u^{21} + \cdots + 56693071931536b + 9041969577747 \rangle$

$I_5^u = \langle u^{82} + 5u^{81} + \cdots - 61u + 11,$
$-1.00827 \times 10^{325}u^{81} - 6.79975 \times 10^{325}u^{80} + \cdots + 6.30829 \times 10^{325}b - 3.99854 \times 10^{326},$
$-4.16480 \times 10^{326}u^{81} - 3.01111 \times 10^{327}u^{80} + \cdots + 6.93912 \times 10^{326}a - 4.26189 \times 10^{328} \rangle$

There are 5 irreducible components with 125 representations.

[1] The knot diagram image is adapter from "C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, http://www.indiana.edu/ knotinfo"

I. $I_1^u = \langle u^2+u+1,\ a+1,\ b-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000-0.866025I$ $a=-1.00000$ $b=\ \ 1.00000$	$4.05977I$	$-6.00000-6.92820I$
$u=-0.500000+0.866025I$ $a=-1.00000$ $b=\ \ 1.00000$	$-\ 4.05977I$	$-6.00000+6.92820I$

II. $I_2^u =$
$\langle u^{10}+2u^9+\cdots+u+1,\ -u^9-17u^8+\cdots+31b-33,\ 30u^9+76u^8+\cdots+31a+29\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-0.967742u^9 - 2.45161u^8 + \cdots - 3.06452u - 0.935484\\0.0322581u^9 + 0.548387u^8 + \cdots + 0.935484u + 1.06452\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.516129u^9 - 0.774194u^8 + \cdots + 0.0322581u + 0.967742\\0.322581u^9 + 0.483871u^8 + \cdots - 1.64516u - 0.354839\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.483871u^9 + 1.22581u^8 + \cdots + 3.03226u + 0.967742\\0.612903u^9 + 0.419355u^8 + \cdots - 2.22581u - 1.77419\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-0.967742u^9 - 2.45161u^8 + \cdots - 3.06452u - 0.935484\\-0.225806u^9 + 0.161290u^8 + \cdots - 0.548387u + 0.548387\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.322581u^9 + 0.483871u^8 + \cdots - 0.645161u - 0.354839\\-1.12903u^9 - 2.19355u^8 + \cdots - 1.74194u - 0.258065\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.677419u^9 - 0.516129u^8 + \cdots + 1.35484u + 1.64516\\0.645161u^9 + 0.967742u^8 + \cdots - 1.29032u - 0.709677\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-0.451613u^9 - 1.67742u^8 + \cdots - 2.09677u - 0.903226\\-0.483871u^9 - 0.225806u^8 + \cdots - 0.0322581u + 1.03226\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.838710u^9 - 2.25806u^8 + \cdots - 0.322581u - 0.677419\\0.0322581u^9 + 0.548387u^8 + \cdots - 2.06452u - 0.935484\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.838710u^9 - 2.25806u^8 + \cdots - 0.322581u - 0.677419\\0.0322581u^9 + 0.548387u^8 + \cdots - 2.06452u - 0.935484\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.018423-0.244155I$ $a=-0.239792-0.549347I$ $b=\ \ 0.738091+0.154992I$	$-0.29233+3.70382I$	$-8.25691-5.45417I$
$u=-1.018423+0.244155I$ $a=-0.239792+0.549347I$ $b=\ \ 0.738091-0.154992I$	$-0.29233-3.70382I$	$-8.25691+5.45417I$
$u=-0.92429-1.22549I$ $a=\ \ 0.559223+0.004571I$ $b=-1.41821+0.85833I$	$3.01018+5.17259I$	$0.22749-12.15389I$
$u=-0.92429+1.22549I$ $a=\ \ 0.559223-0.004571I$ $b=-1.41821-0.85833I$	$3.01018-5.17259I$	$0.22749+12.15389I$
$u=-0.110083-0.618014I$ $a=-0.66742+1.52901I$ $b=\ \ 0.738091+0.154992I$	$-0.29233+3.70382I$	$-8.25691-5.45417I$
$u=-0.110083+0.618014I$ $a=-0.66742-1.52901I$ $b=\ \ 0.738091-0.154992I$	$-0.29233-3.70382I$	$-8.25691+5.45417I$
$u=\ \ 0.511282-0.689550I$ $a=\ \ 1.78807+0.01461I$ $b=-1.41821-0.85833I$	$3.01018-5.17259I$	$0.22749+12.15389I$
$u=\ \ 0.511282+0.689550I$ $a=\ \ 1.78807-0.01461I$ $b=-1.41821+0.85833I$	$3.01018+5.17259I$	$0.22749-12.15389I$
$u=\ \ 0.541512-1.019506I$ $a=\ \ 0.559914-0.828551I$ $b=-0.639756$	-2.14584	-12.9412
$u=\ \ 0.541512+1.019506I$ $a=\ \ 0.559914+0.828551I$ $b=-0.639756$	-2.14584	-12.9412

III. $I_3^u = \langle u^8 - 2u^7 + 2u^6 - u^5 + 4u^4 - 4u^3 + u^2 - u + 1,\ a + 1,\ u^7 - 4u^6 + 5u^5 - u^4 + u^3 - 6u^2 + 5b + 3u + 3\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1 \\ -\frac{1}{5}u^7 + \frac{4}{5}u^6 + \cdots - \frac{3}{5}u - \frac{3}{5} \end{pmatrix}$$

$$a_3 = \begin{pmatrix} \frac{1}{5}u^7 - \frac{4}{5}u^6 + \cdots + \frac{3}{5}u + \frac{8}{5} \\ -u^2 + u \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} \frac{4}{5}u^7 - \frac{6}{5}u^6 + \cdots - \frac{13}{5}u + \frac{2}{5} \\ \frac{3}{5}u^7 - \frac{7}{5}u^6 + \cdots + \frac{9}{5}u - \frac{1}{5} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1 \\ -\frac{1}{5}u^7 + \frac{4}{5}u^6 + \cdots - \frac{3}{5}u - \frac{3}{5} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{5}u^7 - \frac{4}{5}u^6 + \cdots + \frac{3}{5}u + \frac{8}{5} \\ \frac{2}{5}u^7 - \frac{8}{5}u^6 + \cdots + \frac{11}{5}u - \frac{4}{5} \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} \frac{2}{5}u^7 - \frac{8}{5}u^6 + \cdots + \frac{21}{5}u - \frac{4}{5} \\ -u^7 + 2u^6 - 2u^5 - 3u^3 + 3u^2 + u - 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} \frac{1}{5}u^7 - \frac{4}{5}u^6 + \cdots + \frac{3}{5}u - \frac{7}{5} \\ -\frac{2}{5}u^7 + \frac{8}{5}u^6 + \cdots - \frac{6}{5}u - \frac{1}{5} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^7 + 2u^6 - 2u^5 + u^4 - 4u^3 + 4u^2 - u \\ \frac{1}{5}u^7 + \frac{1}{5}u^6 + \cdots - \frac{12}{5}u + \frac{3}{5} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^7 + 2u^6 - 2u^5 + u^4 - 4u^3 + 4u^2 - u \\ \frac{1}{5}u^7 + \frac{1}{5}u^6 + \cdots - \frac{12}{5}u + \frac{3}{5} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.680972-0.950020I$ $a=-1.00000$ $b=\ \ 1.00369-1.11783I$	$2.76768+3.32852I$	$-2.54114-3.52732I$
$u=-0.680972+0.950020I$ $a=-1.00000$ $b=\ \ 1.00369+1.11783I$	$2.76768-3.32852I$	$-2.54114+3.52732I$
$u=-0.270542-0.596264I$ $a=-1.00000$ $b=-0.682189+0.673488I$	$4.08734-8.79857I$	$-1.87665+4.90674I$
$u=-0.270542+0.596264I$ $a=-1.00000$ $b=-0.682189-0.673488I$	$4.08734+8.79857I$	$-1.87665-4.90674I$
$u=\ \ 0.774472-0.243504I$ $a=-1.00000$ $b=-0.501703-0.133216I$	$-2.72625-0.35304I$	$-9.09708+6.47245I$
$u=\ \ 0.774472+0.243504I$ $a=-1.00000$ $b=-0.501703+0.133216I$	$-2.72625+0.35304I$	$-9.09708-6.47245I$
$u=\ \ 1.17704-1.09763I$ $a=-1.00000$ $b=\ \ 1.180207+0.629670I$	$-0.83890-7.80261I$	$-8.9851+11.5999I$
$u=\ \ 1.17704+1.09763I$ $a=-1.00000$ $b=\ \ 1.180207-0.629670I$	$-0.83890+7.80261I$	$-8.9851-11.5999I$

IV. $I_4^u = \langle u^{23}+u^{22}+\cdots-u-1,\ a-1,\ 1.38\times10^{13}u^{22}+1.11\times10^{13}u^{21}+\cdots+5.67\times10^{12}b+9.04\times10^{12}\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_9 = \begin{pmatrix}1\\-2.44055u^{22}-1.96377u^{21}+\cdots-1.03149u-1.59490\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-2.44055u^{22}-1.96377u^{21}+\cdots-1.03149u-0.594899\\3.65928u^{22}+3.48551u^{21}+\cdots+3.07183u+5.08904\end{pmatrix}$$

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

$$a_7 = \begin{pmatrix}-0.779768u^{22}+0.112870u^{21}+\cdots-1.67743u+1.22181\\-0.158891u^{22}-0.393218u^{21}+\cdots-0.610300u-1.40049\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}1\\-2.44055u^{22}-1.96377u^{21}+\cdots-1.03149u-1.59490\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-2.44055u^{22}-1.96377u^{21}+\cdots-1.03149u-0.594899\\2.60333u^{22}+1.94547u^{21}+\cdots+6.99938u+4.13549\end{pmatrix}$$

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

$$a_4 = \begin{pmatrix}-0.104674u^{22}+0.707399u^{21}+\cdots-6.72193u-0.734124\\-3.04793u^{22}-3.43339u^{21}+\cdots+8.89017u+3.74256\end{pmatrix}$$

$$a_8 = \begin{pmatrix}0.527978u^{22}+0.770017u^{21}+\cdots-1.96377u+1.47677\\-2.96852u^{22}-2.73379u^{21}+\cdots+0.932285u-2.07167\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}1.07637u^{22}-0.0757854u^{21}+\cdots+3.79768u+0.507823\\-0.976851u^{22}+0.697631u^{21}+\cdots-10.1320u-1.67494\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}1.07637u^{22}-0.0757854u^{21}+\cdots+3.79768u+0.507823\\-0.976851u^{22}+0.697631u^{21}+\cdots-10.1320u-1.67494\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.09737-1.14913I$ $a=\ \ 1.00000$ $b=-1.20107+1.07696I$	$3.0635+18.7890I$	$-2.94689-9.73353I$
$u=-1.09737+1.14913I$ $a=\ \ 1.00000$ $b=-1.20107-1.07696I$	$3.0635-18.7890I$	$-2.94689+9.73353I$
$u=-1.074707-0.486569I$ $a=\ \ 1.00000$ $b=\ \ 0.065864+0.250987I$	$6.46756+3.72990I$	$2.37255-3.19850I$
$u=-1.074707+0.486569I$ $a=\ \ 1.00000$ $b=\ \ 0.065864-0.250987I$	$6.46756-3.72990I$	$2.37255+3.19850I$
$u=-0.961692-0.218056I$ $a=\ \ 1.00000$ $b=-1.64394+0.75505I$	$6.09809+8.12392I$	$3.40597-8.83423I$
$u=-0.961692+0.218056I$ $a=\ \ 1.00000$ $b=-1.64394-0.75505I$	$6.09809-8.12392I$	$3.40597+8.83423I$
$u=-0.780512-1.128624I$ $a=\ \ 1.00000$ $b=-0.883633+0.620256I$	$-1.41194+2.54862I$	$-8.72632-1.31178I$
$u=-0.780512+1.128624I$ $a=\ \ 1.00000$ $b=-0.883633-0.620256I$	$-1.41194-2.54862I$	$-8.72632+1.31178I$
$u=-0.630153-0.156527I$ $a=\ \ 1.00000$ $b=\ \ 0.165313-1.093691I$	$4.82355+1.72572I$	$1.86379-3.16589I$
$u=-0.630153+0.156527I$ $a=\ \ 1.00000$ $b=\ \ 0.165313+1.093691I$	$4.82355-1.72572I$	$1.86379+3.16589I$

Solution to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.045174 - 0.688125I$ $a = 1.00000$ $b = -0.408856 + 0.444035I$	$-0.744276 + 1.012619I$	$-5.79242 - 5.25340I$
$u = 0.045174 + 0.688125I$ $a = 1.00000$ $b = -0.408856 - 0.444035I$	$-0.744276 - 1.012619I$	$-5.79242 + 5.25340I$
$u = 0.165194 - 0.598626I$ $a = 1.00000$ $b = -1.45874 - 1.25470I$	$-4.00620 - 1.06800I$	$-20.0904 + 5.7474I$
$u = 0.165194 + 0.598626I$ $a = 1.00000$ $b = -1.45874 + 1.25470I$	$-4.00620 + 1.06800I$	$-20.0904 - 5.7474I$
$u = 0.275261 - 0.522880I$ $a = 1.00000$ $b = -1.39814 + 1.67424I$	$3.75645 - 9.55892I$	$-6.8688 + 15.7902I$
$u = 0.275261 + 0.522880I$ $a = 1.00000$ $b = -1.39814 - 1.67424I$	$3.75645 + 9.55892I$	$-6.8688 - 15.7902I$
$u = 0.812260$ $a = 1.00000$ $b = 0.522786$	-2.25842	3.07842
$u = 0.91053 - 1.11280I$ $a = 1.00000$ $b = -1.18169 - 0.99617I$	$-4.74103 - 7.77621I$	$-9.99957 + 4.77400I$
$u = 0.91053 + 1.11280I$ $a = 1.00000$ $b = -1.18169 + 0.99617I$	$-4.74103 + 7.77621I$	$-9.99957 - 4.77400I$
$u = 1.043930 - 0.545298I$ $a = 1.00000$ $b = -0.486704 - 0.933953I$	$9.61085 + 2.02294I$	$3.47785 - 0.15643I$

Solution to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 1.043930 + 0.545298I$ $a = \quad 1.00000$ $b = -0.486704 + 0.933953I$	$9.61085 - 2.02294I$	$3.47785 + 0.15643I$
$u = \quad 1.19821 - 1.01778I$ $a = \quad 1.00000$ $b = -1.32980 - 0.65784I$	$0.41923 - 7.68149I$	$-2.73500 + 7.62634I$
$u = \quad 1.19821 + 1.01778I$ $a = \quad 1.00000$ $b = -1.32980 + 0.65784I$	$0.41923 + 7.68149I$	$-2.73500 - 7.62634I$

V. $I_5^u = \langle u^{82}+5u^{81}+\cdots-61u+11,\ -1.01\times10^{325}u^{81}-6.80\times10^{325}u^{80}+\cdots+6.31\times10^{325}b-4.00\times10^{326},\ -4.16\times10^{326}u^{81}-3.01\times10^{327}u^{80}+\cdots+6.94\times10^{326}a-4.26\times10^{328}\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_9 = \begin{pmatrix}0.600191u^{81}+4.33933u^{80}+\cdots-323.772u+61.4184\\0.159833u^{81}+1.07791u^{80}+\cdots-21.1357u+6.33855\end{pmatrix}$$

$$a_3 = \begin{pmatrix}0.877917u^{81}+4.65768u^{80}+\cdots+13.6153u+10.9495\\1.33041u^{81}+7.44995u^{80}+\cdots-57.7314u+26.4833\end{pmatrix}$$

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

$$a_7 = \begin{pmatrix}-0.977666u^{81}-5.29968u^{80}+\cdots+96.6330u-27.7790\\0.499365u^{81}+1.72600u^{80}+\cdots+208.409u-36.5417\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}0.600191u^{81}+4.33933u^{80}+\cdots-323.772u+61.4184\\0.284186u^{81}+2.02283u^{80}+\cdots-96.1746u+21.0607\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-1.64452u^{81}-8.73749u^{80}+\cdots+47.3432u-20.3745\\0.995234u^{81}+5.59444u^{80}+\cdots-51.1111u+23.7688\end{pmatrix}$$

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

$$a_4 = \begin{pmatrix}-1.14764u^{81}-4.69727u^{80}+\cdots-378.075u+76.5682\\1.10516u^{81}+5.51820u^{80}+\cdots+28.2550u+4.84552\end{pmatrix}$$

$$a_8 = \begin{pmatrix}0.524256u^{81}+3.56153u^{80}+\cdots-233.488u+43.6300\\0.235767u^{81}+1.85571u^{80}+\cdots-111.420u+24.1269\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-0.866225u^{81}-3.81621u^{80}+\cdots-202.691u+27.4490\\0.243233u^{81}+0.984413u^{80}+\cdots+57.7163u-13.0042\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-0.866225u^{81}-3.81621u^{80}+\cdots-202.691u+27.4490\\0.243233u^{81}+0.984413u^{80}+\cdots+57.7163u-13.0042\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.63810-0.73785I$ $a=-0.080255+0.310974I$ $b=-0.377591-0.314083I$	$0.05211-4.45406I$	$-5.2688+13.2582I$
$u=-1.63810+0.73785I$ $a=-0.080255-0.310974I$ $b=-0.377591+0.314083I$	$0.05211+4.45406I$	$-5.2688-13.2582I$
$u=-1.35736-1.45054I$ $a=-0.128294-0.337820I$ $b=\ \ 0.640512+0.245312I$	$3.20535-9.84080I$	$-7.3665+12.1750I$
$u=-1.35736+1.45054I$ $a=-0.128294+0.337820I$ $b=\ \ 0.640512-0.245312I$	$3.20535+9.84080I$	$-7.3665-12.1750I$
$u=-1.26029-1.23384I$ $a=-0.514901-0.159626I$ $b=\ \ 0.586248-0.430941I$	$0.21627+5.92950I$	$-6.37244-9.73133I$
$u=-1.26029+1.23384I$ $a=-0.514901+0.159626I$ $b=\ \ 0.586248+0.430941I$	$0.21627-5.92950I$	$-6.37244+9.73133I$
$u=-1.15748-1.14271I$ $a=-0.864434-0.043906I$ $b=\ \ 1.072420-0.604646I$	$-0.53309+6.66067I$	$-5.50818-4.99627I$
$u=-1.15748+1.14271I$ $a=-0.864434+0.043906I$ $b=\ \ 1.072420+0.604646I$	$-0.53309-6.66067I$	$-5.50818+4.99627I$
$u=-1.15130-1.25481I$ $a=\ \ 0.586287+0.093470I$ $b=-1.19700+1.05903I$	$3.54374+4.65960I$	$5.91432-6.59833I$
$u=-1.15130+1.25481I$ $a=\ \ 0.586287-0.093470I$ $b=-1.19700-1.05903I$	$3.54374-4.65960I$	$5.91432+6.59833I$

Solution to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.067347-0.558400I$ $a=-0.712028-0.590623I$ $b=\ \ 0.627557-1.077089I$	$3.71714+2.02101I$	$4.27581-1.59838I$
$u=-1.067347+0.558400I$ $a=-0.712028+0.590623I$ $b=\ \ 0.627557+1.077089I$	$3.71714-2.02101I$	$4.27581+1.59838I$
$u=-0.962199-0.981391I$ $a=\ \ 0.440609+0.163813I$ $b=-1.391077+0.205521I$	$2.42232+4.46231I$	$-6.31526-4.33383I$
$u=-0.962199+0.981391I$ $a=\ \ 0.440609-0.163813I$ $b=-1.391077-0.205521I$	$2.42232-4.46231I$	$-6.31526+4.33383I$
$u=-0.939641-0.738033I$ $a=-0.498440-0.148669I$ $b=\ \ 0.760971+0.224938I$	$0.05619+2.96133I$	$-4.67276+2.55942I$
$u=-0.939641+0.738033I$ $a=-0.498440+0.148669I$ $b=\ \ 0.760971-0.224938I$	$0.05619-2.96133I$	$-4.67276-2.55942I$
$u=-0.921298-0.494698I$ $a=-0.457676-0.362439I$ $b=\ \ 0.651660-0.931019I$	$3.80604+1.84265I$	$2.21456-1.42669I$
$u=-0.921298+0.494698I$ $a=-0.457676+0.362439I$ $b=\ \ 0.651660+0.931019I$	$3.80604-1.84265I$	$2.21456+1.42669I$
$u=-0.91626-1.16183I$ $a=-1.065040+0.114066I$ $b=\ \ 1.14017-1.05941I$	$-1.61991+12.41906I$	$-5.30475-9.05047I$
$u=-0.91626+1.16183I$ $a=-1.065040-0.114066I$ $b=\ \ 1.14017+1.05941I$	$-1.61991-12.41906I$	$-5.30475+9.05047I$

Solution to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.81201-1.25485I$ $a=\ \ 0.593118+0.174482I$ $b=-0.668382+0.421181I$	$-1.39039+1.97007I$	$-9.76462-4.48787I$
$u=-0.81201+1.25485I$ $a=\ \ 0.593118-0.174482I$ $b=-0.668382-0.421181I$	$-1.39039-1.97007I$	$-9.76462+4.48787I$
$u=-0.756195-0.784225I$ $a=-0.791388+0.100656I$ $b=\ \ 1.32022-0.96586I$	$1.45241+4.98872I$	$-4.83358-8.14945I$
$u=-0.756195+0.784225I$ $a=-0.791388-0.100656I$ $b=\ \ 1.32022+0.96586I$	$1.45241-4.98872I$	$-4.83358+8.14945I$
$u=-0.557708-0.843290I$ $a=\ \ 1.66337-0.26519I$ $b=-1.19700+1.05903I$	$3.54374+4.65960I$	$5.91432-6.59833I$
$u=-0.557708+0.843290I$ $a=\ \ 1.66337+0.26519I$ $b=-1.19700-1.05903I$	$3.54374-4.65960I$	$5.91432+6.59833I$
$u=-0.44924-1.41654I$ $a=-0.531835+0.105664I$ $b=\ \ 1.17238-0.89577I$	$2.07268+5.10749I$	$-6.99667-9.62979I$
$u=-0.44924+1.41654I$ $a=-0.531835-0.105664I$ $b=\ \ 1.17238+0.89577I$	$2.07268-5.10749I$	$-6.99667+9.62979I$
$u=-0.315882-0.644641I$ $a=-0.98248-2.58704I$ $b=\ \ 0.640512-0.245312I$	$3.20535+9.84080I$	$-7.3665-12.1750I$
$u=-0.315882+0.644641I$ $a=-0.98248+2.58704I$ $b=\ \ 0.640512+0.245312I$	$3.20535-9.84080I$	$-7.3665+12.1750I$

Solution to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.263189-0.590031I$ $a=\ 1.99397-0.74133I$ $b=-1.391077+0.205521I$	$2.42232+4.46231I$	$-6.31526-4.33383I$
$u=-0.263189+0.590031I$ $a=\ 1.99397+0.74133I$ $b=-1.391077-0.205521I$	$2.42232-4.46231I$	$-6.31526+4.33383I$
$u=-0.262673-0.885953I$ $a=\ 1.55172-0.45648I$ $b=-0.668382+0.421181I$	$-1.39039+1.97007I$	$-9.76462-4.48787I$
$u=-0.262673+0.885953I$ $a=\ 1.55172+0.45648I$ $b=-0.668382-0.421181I$	$-1.39039-1.97007I$	$-9.76462+4.48787I$
$u=-0.261213-1.016348I$ $a=\ 0.315896+1.170970I$ $b=-0.378284-0.094720I$	$-0.195730-0.062095I$	$-6.22952-0.53803I$
$u=-0.261213+1.016348I$ $a=\ 0.315896-1.170970I$ $b=-0.378284+0.094720I$	$-0.195730+0.062095I$	$-6.22952+0.53803I$
$u=-0.215879-0.748644I$ $a=-0.670369-0.088106I$ $b=\ 1.36164+1.17423I$	$-1.45360+3.78207I$	$-15.3405-7.1796I$
$u=-0.215879+0.748644I$ $a=-0.670369+0.088106I$ $b=\ 1.36164-1.17423I$	$-1.45360-3.78207I$	$-15.3405+7.1796I$
$u=-0.147826-0.403018I$ $a=\ 1.72835+1.77188I$ $b=-0.298326+1.021491I$	$0.116913+1.387899I$	$-6.84622-0.01500I$
$u=-0.147826+0.403018I$ $a=\ 1.72835-1.77188I$ $b=-0.298326-1.021491I$	$0.116913-1.387899I$	$-6.84622+0.01500I$

Solution to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.016198-0.633274I$ $a=\ \ 2.36629+1.68444I$ $b=-0.798131+0.112066I$	$-1.92162+3.53381I$	$-13.5625-6.1581I$
$u=-0.016198+0.633274I$ $a=\ \ 2.36629-1.68444I$ $b=-0.798131-0.112066I$	$-1.92162-3.53381I$	$-13.5625+6.1581I$
$u=\ \ 0.042051-0.442701I$ $a=-2.08868+3.69613I$ $b=\ \ 0.607579+0.018215I$	$-3.37975+0.08879I$	$-21.5224-1.1280I$
$u=\ \ 0.042051+0.442701I$ $a=-2.08868-3.69613I$ $b=\ \ 0.607579-0.018215I$	$-3.37975-0.08879I$	$-21.5224+1.1280I$
$u=\ \ 0.078758-0.520888I$ $a=-1.46639-0.19273I$ $b=\ \ 1.36164-1.17423I$	$-1.45360-3.78207I$	$-15.3405+7.1796I$
$u=\ \ 0.078758+0.520888I$ $a=-1.46639+0.19273I$ $b=\ \ 1.36164+1.17423I$	$-1.45360+3.78207I$	$-15.3405-7.1796I$
$u=\ \ 0.175648-0.247920I$ $a=\ \ 1.06586+3.10648I$ $b=-0.717655+1.200363I$	$5.03352+3.32205I$	$1.56470-2.95701I$
$u=\ \ 0.175648+0.247920I$ $a=\ \ 1.06586-3.10648I$ $b=-0.717655-1.200363I$	$5.03352-3.32205I$	$1.56470+2.95701I$
$u=\ \ 0.242358-0.560326I$ $a=-1.34283-1.06340I$ $b=\ \ 0.651660+0.931019I$	$3.80604-1.84265I$	$2.21456+1.42669I$
$u=\ \ 0.242358+0.560326I$ $a=-1.34283+1.06340I$ $b=\ \ 0.651660-0.931019I$	$3.80604+1.84265I$	$2.21456-1.42669I$

Solution to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.358633 - 0.507561I$ $a = -1.84236 - 0.54951I$ $b = 0.760971 - 0.224938I$	$0.05619 - 2.96133I$	$-4.67276 - 2.55942I$
$u = 0.358633 + 0.507561I$ $a = -1.84236 + 0.54951I$ $b = 0.760971 + 0.224938I$	$0.05619 + 2.96133I$	$-4.67276 + 2.55942I$
$u = 0.360917 - 0.450190I$ $a = -0.77807 - 3.01490I$ $b = -0.377591 - 0.314083I$	$0.05211 - 4.45406I$	$-5.2688 + 13.2582I$
$u = 0.360917 + 0.450190I$ $a = -0.77807 + 3.01490I$ $b = -0.377591 + 0.314083I$	$0.05211 + 4.45406I$	$-5.2688 - 13.2582I$
$u = 0.388600 - 0.705895I$ $a = -1.80888 + 0.35939I$ $b = 1.17238 + 0.89577I$	$2.07268 - 5.10749I$	$-6.99667 + 9.62979I$
$u = 0.388600 + 0.705895I$ $a = -1.80888 - 0.35939I$ $b = 1.17238 - 0.89577I$	$2.07268 + 5.10749I$	$-6.99667 - 9.62979I$
$u = 0.430176 - 1.027996I$ $a = -0.831984 - 0.690126I$ $b = 0.627557 + 1.077089I$	$3.71714 - 2.02101I$	$4.27581 + 1.59838I$
$u = 0.430176 + 1.027996I$ $a = -0.831984 + 0.690126I$ $b = 0.627557 - 1.077089I$	$3.71714 + 2.02101I$	$4.27581 - 1.59838I$
$u = 0.451970 - 0.836483I$ $a = -1.77183 - 0.54929I$ $b = 0.586248 + 0.430941I$	$0.21627 - 5.92950I$	$-6.37244 + 9.73133I$
$u = 0.451970 + 0.836483I$ $a = -1.77183 + 0.54929I$ $b = 0.586248 - 0.430941I$	$0.21627 + 5.92950I$	$-6.37244 - 9.73133I$

Solution to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 0.458604 - 0.958483I$ $a = \ 0.282099 - 0.289204I$ $b = -0.298326 + 1.021491I$	$0.116913 + 1.387899I$	$-6.84622 - 0.01500I$
$u = \ 0.458604 + 0.958483I$ $a = \ 0.282099 + 0.289204I$ $b = -0.298326 - 1.021491I$	$0.116913 - 1.387899I$	$-6.84622 + 0.01500I$
$u = \ 0.662408 - 1.096044I$ $a = -0.464929 + 0.885348I$ $b = \ 0.693222$	-1.00058	-4.42993
$u = \ 0.662408 + 1.096044I$ $a = -0.464929 - 0.885348I$ $b = \ 0.693222$	-1.00058	-4.42993
$u = \ 0.677380 - 0.544511I$ $a = -1.243487 + 0.158158I$ $b = \ 1.32022 + 0.96586I$	$1.45241 - 4.98872I$	$-4.83358 + 8.14945I$
$u = \ 0.677380 + 0.544511I$ $a = -1.243487 - 0.158158I$ $b = \ 1.32022 - 0.96586I$	$1.45241 + 4.98872I$	$-4.83358 - 8.14945I$
$u = \ 0.889090 - 0.427117I$ $a = \ 1.54899 - 0.85472I$ $b = -0.461525 - 0.930289I$	$6.68388 - 9.32368I$	$1.65029 + 9.33817I$
$u = \ 0.889090 + 0.427117I$ $a = \ 1.54899 + 0.85472I$ $b = -0.461525 + 0.930289I$	$6.68388 + 9.32368I$	$1.65029 - 9.33817I$
$u = \ 0.950394 - 1.038615I$ $a = -1.153850 - 0.058607I$ $b = \ 1.072420 + 0.604646I$	$-0.53309 - 6.66067I$	$-5.50818 + 4.99627I$
$u = \ 0.950394 + 1.038615I$ $a = -1.153850 + 0.058607I$ $b = \ 1.072420 - 0.604646I$	$-0.53309 + 6.66067I$	$-5.50818 - 4.99627I$

Solution to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.957374 - 0.281399I$ $a = 0.098816 + 0.288003I$ $b = -0.717655 - 1.200363I$	$5.03352 - 3.32205I$	$1.56470 + 2.95701I$
$u = 0.957374 + 0.281399I$ $a = 0.098816 - 0.288003I$ $b = -0.717655 + 1.200363I$	$5.03352 + 3.32205I$	$1.56470 - 2.95701I$
$u = 1.01213 - 1.42153I$ $a = 0.494897 + 0.273080I$ $b = -0.461525 - 0.930289I$	$6.68388 - 9.32368I$	$1.65029 + 9.33817I$
$u = 1.01213 + 1.42153I$ $a = 0.494897 - 0.273080I$ $b = -0.461525 + 0.930289I$	$6.68388 + 9.32368I$	$1.65029 - 9.33817I$
$u = 1.02838 - 1.52579I$ $a = 0.280477 - 0.199658I$ $b = -0.798131 + 0.112066I$	$-1.92162 + 3.53381I$	$-13.5625 - 6.1581I$
$u = 1.02838 + 1.52579I$ $a = 0.280477 + 0.199658I$ $b = -0.798131 - 0.112066I$	$-1.92162 - 3.53381I$	$-13.5625 + 6.1581I$
$u = 1.107597 - 0.626934I$ $a = 0.214755 - 0.796057I$ $b = -0.378284 - 0.094720I$	$-0.195730 - 0.062095I$	$-6.22952 - 0.53803I$
$u = 1.107597 + 0.626934I$ $a = 0.214755 + 0.796057I$ $b = -0.378284 + 0.094720I$	$-0.195730 + 0.062095I$	$-6.22952 + 0.53803I$
$u = 1.10838 - 1.13288I$ $a = -0.928284 + 0.099420I$ $b = 1.14017 + 1.05941I$	$-1.61991 - 12.41906I$	$-5.30475 + 9.05047I$
$u = 1.10838 + 1.13288I$ $a = -0.928284 - 0.099420I$ $b = 1.14017 - 1.05941I$	$-1.61991 + 12.41906I$	$-5.30475 - 9.05047I$

Solution to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.54845 - 1.08008I$ $a = -0.115883 + 0.205068I$ $b = 0.607579 - 0.018215I$	$-3.37975 - 0.08879I$	$-21.5224 + 1.1280I$
$u = 1.54845 + 1.08008I$ $a = -0.115883 - 0.205068I$ $b = 0.607579 + 0.018215I$	$-3.37975 + 0.08879I$	$-21.5224 - 1.1280I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u^2-u+1)(u^5-u^3+u^2+u-1)^2$ $(u^8-2u^7+4u^6+2u^5+6u^4-10u^3+6u^2-3u+1)$ $(u^{23}+22u^{22}+\cdots+7424u+512)(u^{82}-14u^{81}+\cdots-26u+1)$
c_2	$(u-1)^2(1-3u^2+2u^4+u^5)^2(u^8-2u^7+\cdots+3u+1)$ $(u^{23}+19u^{22}+\cdots-96u-16)(u^{82}-16u^{81}+\cdots-4u+1)$
c_3	$(u^2+u+1)(u^8+u^7+4u^6+3u^5+6u^4+4u^3+3u^2+2u+1)$ $(u^{10}+3u^9+\cdots+5u+1)(u^{23}+10u^{21}+\cdots+6u+1)$ $(u^{82}+4u^{81}+\cdots+1581u+583)$
c_4	$(u^2-u+1)(u^5-u^4-u^3+u^2-1)^2$ $(u^8-u^7-u^6+18u^4-43u^3+40u^2-18u+5)$ $(u^{23}-19u^{22}+\cdots-960u+256)(u^{82}+22u^{81}+\cdots+2024u+121)$
c_5	$(u^2-u+1)(u^8+2u^7+2u^6+u^5+4u^4+4u^3+u^2+u+1)$ $(u^{10}-2u^9+3u^8-3u^7+5u^6-6u^5+3u^4-3u^3+3u^2-u+1)$ $(u^{23}+u^{22}+\cdots-u-1)(u^{82}+5u^{81}+\cdots-61u+11)$
c_6	$u^2(u^8+u^7-2u^6-u^5+5u^4+2u^3-5u^2+4)$ $(u^{10}-2u^9-3u^8+4u^7+7u^6-u^5-7u^4-4u^3+2u^2+3u+1)$ $(u^{23}-u^{22}+\cdots+4u+4)(u^{82}+u^{81}+\cdots-5311u+961)$
c_7	$(u^2-u+1)(u^8-u^7+4u^6-3u^5+6u^4-4u^3+3u^2-2u+1)$ $(u^{10}-3u^9+\cdots-5u+1)(u^{23}+10u^{21}+\cdots+6u+1)$ $(u^{82}+4u^{81}+\cdots+1581u+583)$
c_8	$u^2(u^8+u^7-2u^6-u^5+5u^4+2u^3-5u^2+4)$ $(u^{10}-2u^9-3u^8+4u^7+7u^6-u^5-7u^4-4u^3+2u^2+3u+1)$ $(u^{23}-u^{22}+\cdots+4u+4)(u^{82}+u^{81}+\cdots-5311u+961)$
c_9	$(u^2-u+1)(u^8+2u^7+2u^6+u^5+4u^4+4u^3+u^2+u+1)$ $(u^{10}-2u^9+3u^8-3u^7+5u^6-6u^5+3u^4-3u^3+3u^2-u+1)$ $(u^{23}+u^{22}+\cdots-u-1)(u^{82}+5u^{81}+\cdots-61u+11)$
c_{10}	$(u^2+u+1)(u^8+u^7+4u^6+3u^5+6u^4+4u^3+3u^2+2u+1)$ $(u^{10}+3u^9+\cdots+5u+1)(u^{23}+10u^{21}+\cdots+6u+1)$ $(u^{82}+4u^{81}+\cdots+1581u+583)$
c_{11}	$(u^2-u+1)(u^8-u^7+4u^6-3u^5+6u^4-4u^3+3u^2-2u+1)$ $(u^{10}-3u^9+\cdots-5u+1)(u^{23}+10u^{21}+\cdots+6u+1)$ $(u^{82}+4u^{81}+\cdots+1581u+583)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1	$(y^2+y+1)(y^5-2y^4+3y^3-3y^2+3y-1)^2$ $(y^8+4y^7+36y^6+16y^5+114y^4-8y^3-12y^2+3y+1)$ $(y^{23}-2y^{22}+\cdots+11599872y-262144)$ $(y^{82}+22y^{81}+\cdots-18y+1)$
c_2	$(y-1)^2(y^5-4y^4+12y^3-13y^2+6y-1)^2$ $(y^8-2y^7+9y^6-14y^5+28y^4-19y^3+19y^2-7y+1)$ $(y^{23}-5y^{22}+\cdots-6016y-256)(y^{82}-16y^{81}+\cdots-60y+1)$
c_3	$(y^2+y+1)(y^8+7y^7+22y^6+37y^5+34y^4+16y^3+5y^2+2y+1)$ $(y^{10}+11y^9+46y^8+91y^7+84y^6+8y^5-46y^4-24y^3+4y^2+3y+1)$ $(y^{23}+20y^{22}+\cdots+20y-1)$ $(y^{82}+58y^{81}+\cdots+8444515y+339889)$
c_4	$(y^2+y+1)(y^5-3y^4+3y^3-3y^2+2y-1)^2$ $(y^8-3y^7+37y^6-42y^5+218y^4-419y^3+232y^2+76y+25)$ $(y^{23}-7y^{22}+\cdots+1011712y-65536)$ $(y^{82}+26y^{81}+\cdots+459316y+14641)$
c_5	$(y^2+y+1)(y^8+8y^6+y^5+10y^4-6y^3+y^2+y+1)$ $(y^{10}+2y^9+7y^8+3y^7+y^6-8y^5+3y^4+7y^3+9y^2+5y+1)$ $(y^{23}-3y^{22}+\cdots-3y-1)(y^{82}+13y^{81}+\cdots+6949y+121)$
c_6	$y^2(y^8-5y^7+16y^6-35y^5+57y^4-70y^3+65y^2-40y+16)$ $(y^{10}-10y^9+\cdots-5y+1)(y^{23}-9y^{22}+\cdots+80y-16)$ $(y^{82}-31y^{81}+\cdots-8782989y+923521)$
c_7	$(y^2+y+1)(y^8+7y^7+22y^6+37y^5+34y^4+16y^3+5y^2+2y+1)$ $(y^{10}+11y^9+46y^8+91y^7+84y^6+8y^5-46y^4-24y^3+4y^2+3y+1)$ $(y^{23}+20y^{22}+\cdots+20y-1)$ $(y^{82}+58y^{81}+\cdots+8444515y+339889)$
c_8	$y^2(y^8-5y^7+16y^6-35y^5+57y^4-70y^3+65y^2-40y+16)$ $(y^{10}-10y^9+\cdots-5y+1)(y^{23}-9y^{22}+\cdots+80y-16)$ $(y^{82}-31y^{81}+\cdots-8782989y+923521)$
c_9	$(y^2+y+1)(y^8+8y^6+y^5+10y^4-6y^3+y^2+y+1)$ $(y^{10}+2y^9+7y^8+3y^7+y^6-8y^5+3y^4+7y^3+9y^2+5y+1)$ $(y^{23}-3y^{22}+\cdots-3y-1)(y^{82}+13y^{81}+\cdots+6949y+121)$
c_{10}	$(y^2+y+1)(y^8+7y^7+22y^6+37y^5+34y^4+16y^3+5y^2+2y+1)$ $(y^{10}+11y^9+46y^8+91y^7+84y^6+8y^5-46y^4-24y^3+4y^2+3y+1)$ $(y^{23}+20y^{22}+\cdots+20y-1)$ $(y^{82}+58y^{81}+\cdots+8444515y+339889)$
c_{11}	$(y^2+y+1)(y^8+7y^7+22y^6+37y^5+34y^4+16y^3+5y^2+2y+1)$ $(y^{10}+11y^9+46y^8+91y^7+84y^6+8y^5-46y^4-24y^3+4y^2+3y+1)$ $(y^{23}+20y^{22}+\cdots+20y-1)$ $(y^{82}+58y^{81}+\cdots+8444515y+339889)$