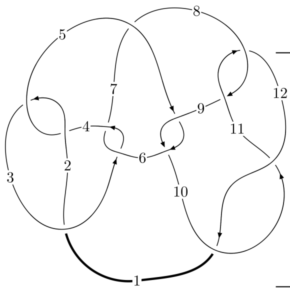
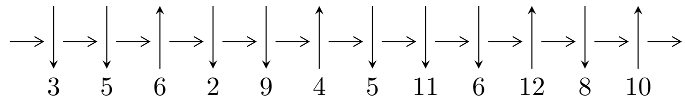
$12n_{0070}$ ($K12n_{0070}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -2.79874 \times 10^{43} u^{47} + 4.02119 \times 10^{43} u^{46} + \cdots + 8.11774 \times 10^{44} b + 8.69331 \times 10^{44},$$
$$8.37339 \times 10^{44} u^{47} - 7.89584 \times 10^{44} u^{46} + \cdots + 8.11774 \times 10^{44} a + 8.23673 \times 10^{44},\ u^{48} - 2u^{47} + \cdots + u - 1 \rangle$$
$$I_2^u = \langle b + 1,\ -u^8 + 3u^6 + u^5 - 4u^4 - 2u^3 + u^2 + a + 2u + 1,\ u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 57 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.

$\boldsymbol{I_1^u = \langle -2.80\times10^{43}u^{47}+4.02\times10^{43}u^{46}+\cdots+8.12\times10^{44}b+8.69\times10^{44},\ 8.37\times10^{44}u^{47}-7.90\times10^{44}u^{46}+\cdots+8.12\times10^{44}a+8.24\times10^{44},\ u^{48}-2u^{47}+\cdots+u-1\rangle}$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} -1.03149u^{47} + 0.972665u^{46} + \cdots + 7.94786u - 1.01466 \\ 0.0344769u^{47} - 0.0495358u^{46} + \cdots + 0.0738871u - 1.07090 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.997016u^{47} + 0.923129u^{46} + \cdots + 8.02175u - 2.08556 \\ 0.0344769u^{47} - 0.0495358u^{46} + \cdots + 0.0738871u - 1.07090 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0331947u^{47} - 0.0856097u^{46} + \cdots + 0.0573894u - 1.12853 \\ 0.0134332u^{47} - 0.0242057u^{46} + \cdots + 0.0350763u - 0.0500498 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1.02750u^{47} + 0.980811u^{46} + \cdots + 7.96292u - 0.995240 \\ 0.0271246u^{47} - 0.0401768u^{46} + \cdots + 0.0617487u - 1.05477 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.0331947u^{47} - 0.0856097u^{46} + \cdots + 0.0573894u - 1.12853 \\ 0.0231038u^{47} - 0.00484707u^{46} + \cdots + 0.0173387u + 0.0308295 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.00227898u^{47} - 0.0424799u^{46} + \cdots - 0.0132823u - 1.06795 \\ 0.0555135u^{47} - 0.0910188u^{46} + \cdots + 0.0935339u - 0.129332 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.00405982u^{47} + 0.347568u^{46} + \cdots - 0.370675u + 0.256769 \\ 0.0520834u^{47} - 0.385513u^{46} + \cdots + 0.537247u + 0.0988580 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0100910u^{47} - 0.0807626u^{46} + \cdots + 0.0400507u - 1.15936 \\ 0.0231038u^{47} - 0.00484707u^{46} + \cdots + 0.0173387u + 0.0308295 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -5.65697u^{47} + 10.4260u^{46} + \cdots + 9.56539u - 4.59345$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{48} + 10u^{47} + \cdots + 29u + 1$
c_2, c_4	$u^{48} - 10u^{47} + \cdots + 9u - 1$
c_3, c_6	$u^{48} + 5u^{47} + \cdots + 2560u + 512$
c_5, c_9	$u^{48} + 2u^{47} + \cdots - u - 1$
c_7	$u^{48} - 10u^{47} + \cdots - 284463u - 118529$
c_8, c_{11}	$u^{48} - 2u^{47} + \cdots + 5u + 1$
c_{10}, c_{12}	$u^{48} - 18u^{47} + \cdots + 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{48} + 66y^{47} + \cdots - 29y + 1$
c_2, c_4	$y^{48} - 10y^{47} + \cdots - 29y + 1$
c_3, c_6	$y^{48} - 57y^{47} + \cdots - 6553600y + 262144$
c_5, c_9	$y^{48} - 10y^{47} + \cdots - 5y + 1$
c_7	$y^{48} + 46y^{47} + \cdots + 130798249663y + 14049123841$
c_8, c_{11}	$y^{48} + 18y^{47} + \cdots - 5y + 1$
c_{10}, c_{12}	$y^{48} + 26y^{47} + \cdots - 305y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.896760 + 0.394007I$ $a = 1.195670 + 0.370079I$ $b = 0.334698 - 0.383487I$	$1.62098 + 2.77574I$	$0.84836 - 5.23754I$
$u = -0.896760 - 0.394007I$ $a = 1.195670 - 0.370079I$ $b = 0.334698 + 0.383487I$	$1.62098 - 2.77574I$	$0.84836 + 5.23754I$
$u = 0.974989$ $a = 1.02044$ $b = 0.393396$	-1.61952	-5.35010
$u = -0.120610 + 0.916069I$ $a = 0.235604 - 0.115451I$ $b = 0.343969 + 0.103094I$	$-0.93576 - 2.61420I$	$-0.93985 + 3.31089I$
$u = -0.120610 - 0.916069I$ $a = 0.235604 + 0.115451I$ $b = 0.343969 - 0.103094I$	$-0.93576 + 2.61420I$	$-0.93985 - 3.31089I$
$u = -0.738807 + 0.549894I$ $a = 0.165480 - 1.227210I$ $b = -0.486703 + 1.024080I$	$-0.48319 + 6.71552I$	$-4.51681 - 9.54041I$
$u = -0.738807 - 0.549894I$ $a = 0.165480 + 1.227210I$ $b = -0.486703 - 1.024080I$	$-0.48319 - 6.71552I$	$-4.51681 + 9.54041I$
$u = -0.599663 + 0.680544I$ $a = 0.187949 - 0.890060I$ $b = -0.049207 + 0.720509I$	$2.76925 + 1.42198I$	$2.53709 - 3.03057I$
$u = -0.599663 - 0.680544I$ $a = 0.187949 + 0.890060I$ $b = -0.049207 - 0.720509I$	$2.76925 - 1.42198I$	$2.53709 + 3.03057I$
$u = 0.697412 + 0.490405I$ $a = 0.242589 + 1.252710I$ $b = -0.620253 - 0.841171I$	$-1.49634 - 1.82392I$	$-7.12758 + 4.49809I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.697412 - 0.490405I$ $a = 0.242589 - 1.252710I$ $b = -0.620253 + 0.841171I$	$-1.49634 + 1.82392I$	$-7.12758 - 4.49809I$
$u = 0.741862 + 0.199966I$ $a = -0.024215 + 0.937984I$ $b = -1.35488 - 0.46391I$	$-3.92122 - 4.12814I$	$-11.08539 + 6.80823I$
$u = 0.741862 - 0.199966I$ $a = -0.024215 - 0.937984I$ $b = -1.35488 + 0.46391I$	$-3.92122 + 4.12814I$	$-11.08539 - 6.80823I$
$u = -0.732347 + 0.133432I$ $a = -0.169686 - 0.690549I$ $b = -1.41588 + 0.30582I$	$-4.22436 - 0.79348I$	$-12.24074 + 0.40151I$
$u = -0.732347 - 0.133432I$ $a = -0.169686 + 0.690549I$ $b = -1.41588 - 0.30582I$	$-4.22436 + 0.79348I$	$-12.24074 - 0.40151I$
$u = -0.837259 + 0.941864I$ $a = -0.544783 - 0.719252I$ $b = 0.782990 + 1.125810I$	$5.63113 + 1.53351I$	0
$u = -0.837259 - 0.941864I$ $a = -0.544783 + 0.719252I$ $b = 0.782990 - 1.125810I$	$5.63113 - 1.53351I$	0
$u = 0.861555 + 0.923996I$ $a = -0.593554 + 0.787088I$ $b = 0.79140 - 1.22798I$	$7.43222 - 6.89004I$	0
$u = 0.861555 - 0.923996I$ $a = -0.593554 - 0.787088I$ $b = 0.79140 + 1.22798I$	$7.43222 + 6.89004I$	0
$u = -0.517390 + 0.487120I$ $a = 1.92274 - 0.32819I$ $b = -0.312068 - 0.327759I$	$-0.09198 - 2.92294I$	$-2.75678 + 1.45029I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.517390-0.487120I$ $a=1.92274+0.32819I$ $b=-0.312068+0.327759I$	$-0.09198+2.92294I$	$-2.75678-1.45029I$
$u=0.871406+0.978758I$ $a=-0.658628+0.639461I$ $b=0.95026-1.11406I$	$11.29790+0.41096I$	0
$u=0.871406-0.978758I$ $a=-0.658628-0.639461I$ $b=0.95026+1.11406I$	$11.29790-0.41096I$	0
$u=1.002820+0.849357I$ $a=0.72578-1.44875I$ $b=0.939578+1.008210I$	$6.96696+0.32370I$	0
$u=1.002820-0.849357I$ $a=0.72578+1.44875I$ $b=0.939578-1.008210I$	$6.96696-0.32370I$	0
$u=1.271800+0.367688I$ $a=0.720656-0.331546I$ $b=0.681047+0.240011I$	$-5.31134-1.83633I$	0
$u=1.271800-0.367688I$ $a=0.720656+0.331546I$ $b=0.681047-0.240011I$	$-5.31134+1.83633I$	0
$u=-0.844944+1.021610I$ $a=-0.595460-0.519471I$ $b=0.959842+0.954036I$	$5.10392-1.89300I$	0
$u=-0.844944-1.021610I$ $a=-0.595460+0.519471I$ $b=0.959842-0.954036I$	$5.10392+1.89300I$	0
$u=-1.030920+0.851423I$ $a=0.63113+1.38478I$ $b=0.990071-0.940352I$	$5.00640+5.09433I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.030920 - 0.851423I$ $a = 0.63113 - 1.38478I$ $b = 0.990071 + 0.940352I$	$5.00640 - 5.09433I$	0
$u = -1.266230 + 0.463136I$ $a = 0.690484 + 0.432110I$ $b = 0.720279 - 0.304393I$	$-4.61107 + 7.74308I$	0
$u = -1.266230 - 0.463136I$ $a = 0.690484 - 0.432110I$ $b = 0.720279 + 0.304393I$	$-4.61107 - 7.74308I$	0
$u = 0.867259 + 1.032790I$ $a = -0.651865 + 0.488809I$ $b = 1.034680 - 0.958036I$	$6.65683 + 7.53345I$	0
$u = 0.867259 - 1.032790I$ $a = -0.651865 - 0.488809I$ $b = 1.034680 + 0.958036I$	$6.65683 - 7.53345I$	0
$u = 0.516744 + 0.394217I$ $a = 0.62833 + 1.70615I$ $b = -0.701706 - 0.277894I$	$-0.88029 - 1.27188I$	$-6.26432 + 4.55192I$
$u = 0.516744 - 0.394217I$ $a = 0.62833 - 1.70615I$ $b = -0.701706 + 0.277894I$	$-0.88029 + 1.27188I$	$-6.26432 - 4.55192I$
$u = 1.029070 + 0.891394I$ $a = 0.52071 - 1.51346I$ $b = 1.09974 + 1.00345I$	$10.77840 - 7.27793I$	0
$u = 1.029070 - 0.891394I$ $a = 0.52071 + 1.51346I$ $b = 1.09974 - 1.00345I$	$10.77840 + 7.27793I$	0
$u = 0.421301 + 0.450001I$ $a = 1.94355 + 1.59209I$ $b = -0.639240 + 0.073730I$	$-0.95094 - 1.38886I$	$-6.78496 + 5.34534I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.421301 - 0.450001I$ $a = 1.94355 - 1.59209I$ $b = -0.639240 - 0.073730I$	$-0.95094 + 1.38886I$	$-6.78496 - 5.34534I$
$u = -1.062880 + 0.898984I$ $a = 0.39761 + 1.42135I$ $b = 1.16352 - 0.90692I$	$4.39176 + 8.90399I$	0
$u = -1.062880 - 0.898984I$ $a = 0.39761 - 1.42135I$ $b = 1.16352 + 0.90692I$	$4.39176 - 8.90399I$	0
$u = 1.059770 + 0.914043I$ $a = 0.35101 - 1.47183I$ $b = 1.20972 + 0.93066I$	$6.0154 - 14.6316I$	0
$u = 1.059770 - 0.914043I$ $a = 0.35101 + 1.47183I$ $b = 1.20972 - 0.93066I$	$6.0154 + 14.6316I$	0
$u = -0.501063$ $a = -2.33906$ $b = -1.11935$	-2.23585	-0.442570
$u = 0.069842 + 0.433647I$ $a = 7.33822 + 1.47455I$ $b = -1.058890 + 0.041997I$	$-1.95643 + 2.20437I$	$21.2973 + 12.8131I$
$u = 0.069842 - 0.433647I$ $a = 7.33822 - 1.47455I$ $b = -1.058890 - 0.041997I$	$-1.95643 - 2.20437I$	$21.2973 - 12.8131I$

II. $\boldsymbol{I_2^u = \langle b+1,\ -u^8+3u^6+u^5-4u^4-2u^3+u^2+a+2u+1,\ u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^8-6u^7+2u^6+13u^5+2u^4-13u^3-5u^2-4u-6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^9$
c_3, c_6	u^9
c_4	$(u+1)^9$
c_5	$u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1$
c_7	$u^9 + 5u^8 + 12u^7 + 15u^6 + 9u^5 - u^4 - 4u^3 - 2u^2 + u + 1$
c_8	$u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1$
c_9	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_{10}	$u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1$
c_{11}	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_{12}	$u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^9$
c_3, c_6	y^9
c_5, c_9	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_7	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$
c_8, c_{11}	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_{10}, c_{12}	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.772920 + 0.510351I$ $a = -0.457852 - 1.072010I$ $b = -1.00000$	$0.13850 + 2.09337I$	$-2.03658 - 4.61282I$
$u = -0.772920 - 0.510351I$ $a = -0.457852 + 1.072010I$ $b = -1.00000$	$0.13850 - 2.09337I$	$-2.03658 + 4.61282I$
$u = 0.825933$ $a = -1.46592$ $b = -1.00000$	-2.84338	-15.2670
$u = 1.173910 + 0.391555I$ $a = -0.522253 + 0.392004I$ $b = -1.00000$	$-6.01628 - 1.33617I$	$-12.05808 - 1.14063I$
$u = 1.173910 - 0.391555I$ $a = -0.522253 - 0.392004I$ $b = -1.00000$	$-6.01628 + 1.33617I$	$-12.05808 + 1.14063I$
$u = -0.141484 + 0.739668I$ $a = 1.63880 - 0.65075I$ $b = -1.00000$	$-2.26187 - 2.45442I$	$-8.82413 + 4.82524I$
$u = -0.141484 - 0.739668I$ $a = 1.63880 + 0.65075I$ $b = -1.00000$	$-2.26187 + 2.45442I$	$-8.82413 - 4.82524I$
$u = -1.172470 + 0.500383I$ $a = -0.425734 - 0.444312I$ $b = -1.00000$	$-5.24306 + 7.08493I$	$-9.44791 - 3.65320I$
$u = -1.172470 - 0.500383I$ $a = -0.425734 + 0.444312I$ $b = -1.00000$	$-5.24306 - 7.08493I$	$-9.44791 + 3.65320I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^9)(u^{48}+10u^{47}+\cdots+29u+1)$
c_2	$((u-1)^9)(u^{48}-10u^{47}+\cdots+9u-1)$
c_3, c_6	$u^9(u^{48}+5u^{47}+\cdots+2560u+512)$
c_4	$((u+1)^9)(u^{48}-10u^{47}+\cdots+9u-1)$
c_5	$(u^9+u^8+\cdots-u-1)(u^{48}+2u^{47}+\cdots-u-1)$
c_7	$(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)$ $\cdot(u^{48}-10u^{47}+\cdots-284463u-118529)$
c_8	$(u^9+u^8+\cdots+u-1)(u^{48}-2u^{47}+\cdots+5u+1)$
c_9	$(u^9-u^8+\cdots-u+1)(u^{48}+2u^{47}+\cdots-u-1)$
c_{10}	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{48}-18u^{47}+\cdots+5u+1)$
c_{11}	$(u^9-u^8+\cdots+u+1)(u^{48}-2u^{47}+\cdots+5u+1)$
c_{12}	$(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^{48}-18u^{47}+\cdots+5u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^9)(y^{48}+66y^{47}+\cdots-29y+1)$
c_2, c_4	$((y-1)^9)(y^{48}-10y^{47}+\cdots-29y+1)$
c_3, c_6	$y^9(y^{48}-57y^{47}+\cdots-6553600y+262144)$
c_5, c_9	$(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{48}-10y^{47}+\cdots-5y+1)$
c_7	$(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{48}+46y^{47}+\cdots+130798249663y+14049123841)$
c_8, c_{11}	$(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{48}+18y^{47}+\cdots-5y+1)$
c_{10}, c_{12}	$(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{48}+26y^{47}+\cdots-305y+1)$