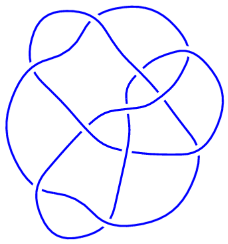
$11n_{160}$ ($K11n_{160}$)



[1]

Arc Sequences

$$\rightarrow \uparrow_{10} \rightarrow \downarrow_{5} \rightarrow \downarrow_{1} \rightarrow \downarrow_{8} \rightarrow \downarrow_{10} \rightarrow \downarrow_{3} \rightarrow \uparrow_{11} \rightarrow \downarrow_{5} \rightarrow \uparrow_{3} \rightarrow \downarrow_{4} \rightarrow \uparrow_{7} \rightarrow$$

Solving Sequence

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

Representation Ideals

$$I = \bigcap_{i=1}^{2} I_i^u$$

$$\begin{aligned}
I_1^u = \langle & u^9 - 3u^8 + 3u^7 - 3u^6 - u^5 + 6u^4 - 3u^3 - 3u^2 - 1, \\
& 10u^8 - 21u^7 - 5u^6 + 18u^5 - 54u^4 + 73u^3 + 28u^2 + 28a - 100u + 1, \\
& -9u^8 + 35u^7 - 48u^6 + 44u^5 - 13u^4 - 58u^3 + 42u^2 + 28b + 27u - 10\rangle \\
I_2^u = \langle & u^{42} + 20u^{40} + \cdots + 749u - 101, \\
& -1.37761 \times 10^{93}u^{41} - 8.98126 \times 10^{92}u^{40} + \cdots + 6.36373 \times 10^{94}b - 1.48981 \times 10^{95}, \\
& 5.02531 \times 10^{95}u^{41} - 1.23855 \times 10^{95}u^{40} + \cdots + 6.42736 \times 10^{96}a + 2.36484 \times 10^{98}\rangle
\end{aligned}$$

There are 2 irreducible components with 51 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. $I_1^u =$
$\langle u^9 - 3u^8 + \cdots - 3u^2 - 1,\ 10u^8 - 21u^7 + \cdots + 28a + 1,\ -9u^8 + 35u^7 + \cdots + 28b - 10\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{5}{14}u^8 + \frac{3}{4}u^7 + \cdots + \frac{25}{7}u - \frac{1}{28} \\ \frac{9}{28}u^8 - \frac{5}{4}u^7 + \cdots - \frac{27}{28}u + \frac{5}{14} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.892857u^8 + 2.75000u^7 + \cdots + 1.67857u + 1.28571 \\ \frac{3}{28}u^8 - \frac{1}{4}u^7 + \cdots - \frac{9}{28}u + \frac{2}{7} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^8 + 3u^7 - 3u^6 + 3u^5 + u^4 - 6u^3 + 3u^2 + 2u + 1 \\ \frac{3}{28}u^8 - \frac{1}{4}u^7 + \cdots - \frac{9}{28}u + \frac{2}{7} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{5}{14}u^8 + u^7 + \cdots + \frac{1}{14}u + \frac{45}{14} \\ \frac{3}{14}u^8 - \frac{1}{2}u^7 + \cdots - \frac{23}{14}u - \frac{3}{7} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.678571u^8 + 2u^7 + \cdots + 4.53571u - 0.392857 \\ \frac{9}{28}u^8 - \frac{5}{4}u^7 + \cdots - \frac{27}{28}u + \frac{5}{14} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.678571u^8 + 2u^7 + \cdots + 4.53571u - 0.392857 \\ -\frac{1}{14}u^8 - \frac{1}{4}u^7 + \cdots - \frac{2}{7}u + \frac{11}{28} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{17}{14}u^8 - \frac{7}{2}u^7 + \cdots - \frac{65}{14}u - \frac{3}{7} \\ -\frac{1}{7}u^8 + \frac{4}{7}u^6 + \cdots + \frac{10}{7}u - \frac{5}{7} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{9}{14}u^8 - \frac{11}{4}u^7 + \cdots + \frac{4}{7}u + \frac{41}{28} \\ -\frac{5}{28}u^8 + u^7 + \cdots - \frac{55}{28}u + \frac{3}{28} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{9}{14}u^8 - \frac{11}{4}u^7 + \cdots + \frac{4}{7}u + \frac{41}{28} \\ -\frac{5}{28}u^8 + u^7 + \cdots - \frac{55}{28}u + \frac{3}{28} \end{pmatrix}$$

(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
$u = -0.796448 - 0.144077I$ $a = -1.58027 + 0.49718I$ $b = 0.079781 + 0.541877I$	$-7.57318 - 6.23029I$	$-10.70312 + 5.64960I$
$u = -0.796448 + 0.144077I$ $a = -1.58027 - 0.49718I$ $b = 0.079781 - 0.541877I$	$-7.57318 + 6.23029I$	$-10.70312 - 5.64960I$
$u = 0.048121 - 0.465250I$ $a = 0.50444 - 1.82038I$ $b = 0.560397 + 0.742763I$	$-1.99801 + 1.72753I$	$-3.97057 - 2.65342I$
$u = 0.048121 + 0.465250I$ $a = 0.50444 + 1.82038I$ $b = 0.560397 - 0.742763I$	$-1.99801 - 1.72753I$	$-3.97057 + 2.65342I$
$u = 0.07249 - 1.46762I$ $a = -1.308116 - 0.248379I$ $b = -1.76179 - 0.64696I$	$4.53577 + 3.70953I$	$-0.23420 - 7.12511I$
$u = 0.07249 + 1.46762I$ $a = -1.308116 + 0.248379I$ $b = -1.76179 + 0.64696I$	$4.53577 - 3.70953I$	$-0.23420 + 7.12511I$
$u = 1.087785 - 0.549338I$ $a = 0.037467 + 0.285860I$ $b = -0.404070 - 0.936159I$	$-5.07942 + 1.69947I$	$-16.7062 - 3.0605I$
$u = 1.087785 + 0.549338I$ $a = 0.037467 - 0.285860I$ $b = -0.404070 + 0.936159I$	$-5.07942 - 1.69947I$	$-16.7062 + 3.0605I$
$u = 2.17611$ $a = 0.692963$ $b = 1.05137$	0.490477	53.2282

II. $\boldsymbol{I_2^u = \langle u^{42} + 20u^{40} + \cdots + 749u - 101,\ -1.38 \times 10^{93}u^{41} - 8.98 \times 10^{92}u^{40} + \cdots + 6.36 \times 10^{94}b - 1.49 \times 10^{95},\ 5.03 \times 10^{95}u^{41} - 1.24 \times 10^{95}u^{40} + \cdots + 6.43 \times 10^{96}a + 2.36 \times 10^{98}\rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} -0.0781862u^{41} + 0.0192700u^{40} + \cdots + 187.238u - 36.7933 \\ 0.0216479u^{41} + 0.0141132u^{40} + \cdots - 18.1532u + 2.34110 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -0.0784504u^{41} + 0.0536097u^{40} + \cdots + 261.218u - 52.2702 \\ -0.0265474u^{41} + 0.00428021u^{40} + \cdots + 57.1137u - 11.0712 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0519030u^{41} + 0.0493295u^{40} + \cdots + 204.105u - 41.1990 \\ -0.0265474u^{41} + 0.00428021u^{40} + \cdots + 57.1137u - 11.0712 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} 0.0560057u^{41} - 0.0200714u^{40} + \cdots - 172.895u + 34.9117 \\ -0.0436759u^{41} - 0.0271300u^{40} + \cdots + 14.1412u + 0.298544 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0998341u^{41} + 0.00515681u^{40} + \cdots + 205.391u - 39.1344 \\ 0.0216479u^{41} + 0.0141132u^{40} + \cdots - 18.1532u + 2.34110 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0998341u^{41} + 0.00515681u^{40} + \cdots + 205.391u - 39.1344 \\ -0.000478245u^{41} - 0.00411528u^{40} + \cdots - 4.20753u + 1.82026 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.00531825u^{41} - 0.0493745u^{40} + \cdots - 121.866u + 26.1489 \\ 0.0775758u^{41} + 0.0100320u^{40} + \cdots - 119.757u + 20.0369 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.297466u^{41} + 0.101977u^{40} + \cdots - 342.494u + 44.9999 \\ 0.00292049u^{41} + 0.00829692u^{40} + \cdots - 2.68211u - 1.46488 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.297466u^{41} + 0.101977u^{40} + \cdots - 342.494u + 44.9999 \\ 0.00292049u^{41} + 0.00829692u^{40} + \cdots - 2.68211u - 1.46488 \end{pmatrix}$$

(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
$u = -2.64314$ $a = 0.754707$ $b = 1.06758$	0.445368	-132.910
$u = -1.54579 - 0.18285I$ $a = -0.165051 + 0.217661I$ $b = -0.873097 - 0.018070I$	$-5.60720 - 6.66981I$	$-4.81384 + 5.61602I$
$u = -1.54579 + 0.18285I$ $a = -0.165051 - 0.217661I$ $b = -0.873097 + 0.018070I$	$-5.60720 + 6.66981I$	$-4.81384 - 5.61602I$
$u = -0.57790 - 1.71570I$ $a = -1.095249 - 0.128831I$ $b = -1.62757 + 0.37825I$	$5.50962 - 8.17142I$	$-1.83275 + 6.34212I$
$u = -0.57790 + 1.71570I$ $a = -1.095249 + 0.128831I$ $b = -1.62757 - 0.37825I$	$5.50962 + 8.17142I$	$-1.83275 - 6.34212I$
$u = -0.52555 - 1.75387I$ $a = 1.101026 + 0.054372I$ $b = 1.70254 - 0.60123I$	$0.9874 - 14.3018I$	$-4.52058 + 7.23021I$
$u = -0.52555 + 1.75387I$ $a = 1.101026 - 0.054372I$ $b = 1.70254 + 0.60123I$	$0.9874 + 14.3018I$	$-4.52058 - 7.23021I$
$u = -0.492771 - 0.001301I$ $a = 0.391224 - 1.172736I$ $b = 0.545886 - 0.397696I$	$0.96120 - 1.37637I$	$2.37205 + 4.71298I$
$u = -0.492771 + 0.001301I$ $a = 0.391224 + 1.172736I$ $b = 0.545886 + 0.397696I$	$0.96120 + 1.37637I$	$2.37205 - 4.71298I$
$u = -0.41431 - 2.06998I$ $a = 0.984324 + 0.180580I$ $b = 1.165815 - 0.238843I$	$0.510430 - 0.864801I$	$-13.7057 - 6.3010I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.41431 + 2.06998I$ $a = 0.984324 - 0.180580I$ $b = 1.165815 + 0.238843I$	$0.510430 + 0.864801I$	$-13.7057 + 6.3010I$
$u = -0.045927 - 0.526713I$ $a = 0.799839 + 1.113350I$ $b = -0.434584 + 0.300537I$	$-0.95288 + 2.06296I$	$-2.70729 - 3.81916I$
$u = -0.045927 + 0.526713I$ $a = 0.799839 - 1.113350I$ $b = -0.434584 - 0.300537I$	$-0.95288 - 2.06296I$	$-2.70729 + 3.81916I$
$u = 0.018310 - 0.894802I$ $a = 0.645532 - 0.373937I$ $b = -0.02747 - 1.48614I$	$-4.81718 + 6.58441I$	$-5.59437 - 5.87348I$
$u = 0.018310 + 0.894802I$ $a = 0.645532 + 0.373937I$ $b = -0.02747 + 1.48614I$	$-4.81718 - 6.58441I$	$-5.59437 + 5.87348I$
$u = 0.01981 - 1.75119I$ $a = -0.999628 - 0.228933I$ $b = -1.58501 + 0.02240I$	$7.93236 + 2.29439I$	$1.44420 - 0.77498I$
$u = 0.01981 + 1.75119I$ $a = -0.999628 + 0.228933I$ $b = -1.58501 - 0.02240I$	$7.93236 - 2.29439I$	$1.44420 + 0.77498I$
$u = 0.07435 - 1.78893I$ $a = 0.938825 + 0.216455I$ $b = 1.83715 + 0.14822I$	$5.41237 + 6.59053I$	$-2.62123 - 6.46618I$
$u = 0.07435 + 1.78893I$ $a = 0.938825 - 0.216455I$ $b = 1.83715 - 0.14822I$	$5.41237 - 6.59053I$	$-2.62123 + 6.46618I$
$u = 0.08366 - 1.50753I$ $a = -1.270158 - 0.266824I$ $b = -1.48604 - 0.87974I$	$3.06015 + 4.00976I$	$-4.45214 - 4.88488I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.08366 + 1.50753I$ $a = -1.270158 + 0.266824I$ $b = -1.48604 + 0.87974I$	$3.06015 - 4.00976I$	$-4.45214 + 4.88488I$
$u = 0.086589 - 0.706593I$ $a = -0.0935123 + 0.0986752I$ $b = 0.276525 + 1.147408I$	$-1.12929 + 2.58933I$	$-0.40470 - 5.03166I$
$u = 0.086589 + 0.706593I$ $a = -0.0935123 - 0.0986752I$ $b = 0.276525 - 1.147408I$	$-1.12929 - 2.58933I$	$-0.40470 + 5.03166I$
$u = 0.14313 - 1.50275I$ $a = 1.278823 - 0.003892I$ $b = 1.83391 + 0.52303I$	$4.55674 + 2.88338I$	$-1.15978 + 1.33841I$
$u = 0.14313 + 1.50275I$ $a = 1.278823 + 0.003892I$ $b = 1.83391 - 0.52303I$	$4.55674 - 2.88338I$	$-1.15978 - 1.33841I$
$u = 0.26966 - 1.44580I$ $a = 1.162277 - 0.264169I$ $b = 1.76880 + 0.29663I$	$4.33527 + 2.92425I$	$-1.15497 - 2.08183I$
$u = 0.26966 + 1.44580I$ $a = 1.162277 + 0.264169I$ $b = 1.76880 - 0.29663I$	$4.33527 - 2.92425I$	$-1.15497 + 2.08183I$
$u = 0.301319 - 1.190513I$ $a = -1.25885 + 0.85918I$ $b = -1.70529 + 0.20752I$	$3.08658 - 1.51461I$	$-1.61949 + 2.96401I$
$u = 0.301319 + 1.190513I$ $a = -1.25885 - 0.85918I$ $b = -1.70529 - 0.20752I$	$3.08658 + 1.51461I$	$-1.61949 - 2.96401I$
$u = 0.301486 - 0.307655I$ $a = -2.44416 - 3.19617I$ $b = -0.560869 - 0.365926I$	$-6.74843 - 5.64741I$	$-3.18941 + 1.63716I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.301486 + 0.307655I$ $a = -2.44416 + 3.19617I$ $b = -0.560869 + 0.365926I$	$-6.74843 + 5.64741I$	$-3.18941 - 1.63716I$
$u = 0.403159 - 0.306921I$ $a = -0.13087 + 1.45597I$ $b = -0.556105 - 1.209910I$	$-4.10677 + 1.00823I$	$-6.95415 + 0.51830I$
$u = 0.403159 + 0.306921I$ $a = -0.13087 - 1.45597I$ $b = -0.556105 + 1.209910I$	$-4.10677 - 1.00823I$	$-6.95415 - 0.51830I$
$u = 0.474707 - 0.528975I$ $a = -0.486188 - 1.148845I$ $b = 0.909102 + 0.548313I$	$-3.52003 + 2.03312I$	$-8.42216 - 3.37678I$
$u = 0.474707 + 0.528975I$ $a = -0.486188 + 1.148845I$ $b = 0.909102 - 0.548313I$	$-3.52003 - 2.03312I$	$-8.42216 + 3.37678I$
$u = 0.53365 - 1.65271I$ $a = -0.735794 + 0.194295I$ $b = -1.55859 - 0.49514I$	$-0.24491 + 5.34601I$	$-6.61771 - 6.40608I$
$u = 0.53365 + 1.65271I$ $a = -0.735794 - 0.194295I$ $b = -1.55859 + 0.49514I$	$-0.24491 - 5.34601I$	$-6.61771 + 6.40608I$
$u = 0.593548 - 0.597226I$ $a = 1.00680 + 0.99663I$ $b = 0.090224 - 0.110489I$	$-1.94227 - 0.55855I$	$-3.25163 - 2.41810I$
$u = 0.593548 + 0.597226I$ $a = 1.00680 - 0.99663I$ $b = 0.090224 + 0.110489I$	$-1.94227 + 0.55855I$	$-3.25163 + 2.41810I$
$u = 0.725613$ $a = 0.508253$ $b = -0.330441$	-1.10908	-10.5894

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.257641 - 0.545229I$ $a = 0.006635 - 0.395787I$ $b = 0.416122 + 0.470730I$	$-4.48395 + 1.62517I$	$-2.04474 - 0.35828I$
$u = 1.257641 + 0.545229I$ $a = 0.006635 + 0.395787I$ $b = 0.416122 - 0.470730I$	$-4.48395 - 1.62517I$	$-2.04474 + 0.35828I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u^9 - 5u^8 + 3u^7 - 3u^5 + 3u^4 + 6u^3 - 6u^2 + 4u - 4)$ $(u^{42} + 2u^{41} + \cdots - 124u - 4)$
c_2	$(u^9 - 3u^8 + 3u^7 - 3u^6 - u^5 + 6u^4 - 3u^3 - 3u^2 - 1)$ $(u^{42} + 20u^{40} + \cdots + 749u - 101)$
c_3	$(u^9 + 5u^8 + 13u^7 + 18u^6 + 18u^5 + 14u^4 + 13u^3 + 10u^2 + 7u + 1)$ $(u^{42} + 6u^{41} + \cdots + 8u + 1)$
c_4	$(u^9 + 3u^8 + u^7 - 8u^6 - 11u^5 + 3u^4 + 14u^3 + 6u^2 - 4u - 4)$ $(u^{42} + 2u^{41} + \cdots + 556u + 116)$
c_5	$(u^9 + 2u^8 + 2u^7 + 7u^6 + 5u^5 - 10u^4 - 6u^3 + 6u^2 + 3u + 1)$ $(u^{42} + 3u^{41} + \cdots + 184u - 11)$
c_6	$(u^9 - 3u^8 + 2u^7 + 9u^6 - 3u^5 - 6u^4 + 8u^3 + 11u^2 + 5u + 1)$ $(u^{42} + u^{40} + \cdots - 106u - 97)$
c_7	$(u^9 + u^8 + 2u^7 + 6u^6 + 9u^4 - 3u^3 + 4u^2 - 2u + 1)$ $(u^{42} + 4u^{41} + \cdots + 47u - 13)$
c_8	$(u^9 - 3u^8 + u^7 + 8u^6 - 11u^5 - 3u^4 + 14u^3 - 6u^2 - 4u + 4)$ $(u^{42} + 2u^{41} + \cdots + 556u + 116)$
c_9	$(u^9 - 2u^8 + u^6 + u^5 + 2u^4 + 2u^3 + 4u^2 + u + 1)$ $(u^{42} + u^{41} + \cdots - 112u - 23)$
c_{10}	$(u^9 + u^8 - u^7 + 2u^6 + 10u^5 + 3u^4 - 3u^3 + 4u^2 + 5u + 1)$ $(u^{42} + 2u^{41} + \cdots + 128u + 29)$
c_{11}	$(u^9 - u^8 + 2u^7 - 6u^6 - 9u^4 - 3u^3 - 4u^2 - 2u - 1)$ $(u^{42} + 4u^{41} + \cdots + 47u - 13)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1	$(y^9-19y^8+3y^7+24y^6-7y^5-61y^4+48y^3+36y^2-32y-16)$ $(y^{42}-72y^{41}+\cdots-5760y+16)$
c_2	$(y^9-3y^8-11y^7+15y^6+y^5-54y^4+39y^3+3y^2-6y-1)$ $(y^{42}+40y^{41}+\cdots+72673y+10201)$
c_3	$(y^9+y^8+25y^7+30y^6+72y^5+84y^4+105y^3+54y^2+29y-1)$ $(y^{42}+4y^{41}+\cdots-30y+1)$
c_4	$(y^9-7y^8+\cdots+64y-16)(y^{42}-24y^{41}+\cdots-45120y+13456)$
c_5	$(y^9-14y^7-y^6+123y^5-236y^4+172y^3-52y^2-3y-1)$ $(y^{42}+51y^{41}+\cdots+5722y+121)$
c_6	$(y^9-5y^8+52y^7-113y^6+225y^5-256y^4+148y^3-29y^2+3y-1)$ $(y^{42}+2y^{41}+\cdots+164916y+9409)$
c_7, c_{11}	$(y^9+3y^8-8y^7-60y^6-132y^5-139y^4-75y^3-22y^2-4y-1)$ $(y^{42}+26y^{41}+\cdots-805y+169)$
c_8	$(y^9-7y^8+\cdots+64y-16)(y^{42}-24y^{41}+\cdots-45120y+13456)$
c_9	$(y^9-4y^8+6y^7+11y^6+15y^5-4y^4-12y^3-16y^2-7y-1)$ $(y^{42}-45y^{41}+\cdots-1274y+529)$
c_{10}	$(y^9-3y^8+17y^7-36y^6+96y^5-97y^4+81y^3-52y^2+17y-1)$ $(y^{42}-12y^{41}+\cdots-22358y+841)$