

Vassiliev Invariants

(Chord parametrization)

Part II

Evert Stenlund

$$[[2]] = \text{circle with two diameters} \quad [[3]] = \text{circle with three diameters}$$

$$[[41]] = \text{circle with four diameters and two chords} \quad [[42]] = \text{circle with four diameters and two other chords} \quad [[43]] = \text{circle with four diameters and four chords}$$

$$[[51]] = \text{circle with five diameters and four chords} \quad [[52]] = \text{circle with five diameters and four other chords} \quad [[53]] = \text{circle with five diameters and six chords}$$

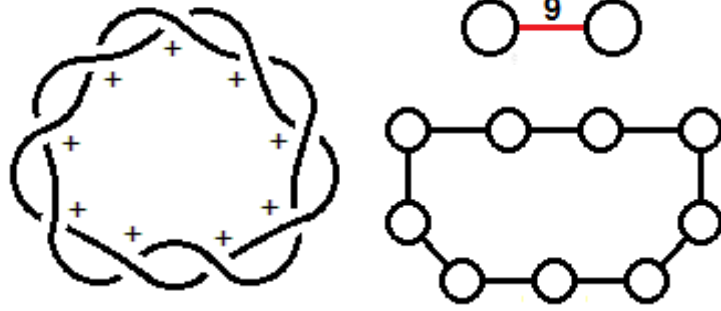
$$[[54]] = \text{circle with five diameters and six other chords}$$

$$[[61]] = \text{circle with six diameters and six chords} \quad [[62]] = \text{circle with six diameters and six other chords} \quad [[63]] = \text{circle with six diameters and eight chords}$$

$$[[64]] = \text{circle with six diameters and eight other chords} \quad [[65]] = \text{circle with six diameters and ten chords} \quad [[66]] = \text{circle with six diameters and ten other chords}$$

$$[[67]] = \text{circle with six diameters and ten other chords} \quad [[68]] = \text{circle with six diameters and twelve chords} \quad [[69]] = \text{circle with six diameters and twelve other chords}$$

$\mathfrak{g}_1:$

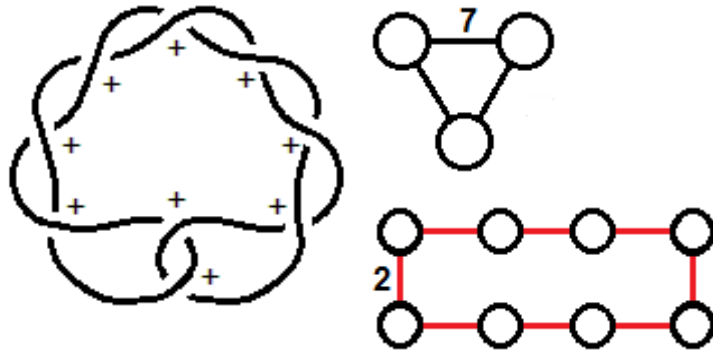


$$v_{\text{even}} = x_{9.1}$$

$$v_{\text{odd}} = \pm y_{9.1}$$

v_2	$10[[2]]$
v_3	$\pm 30[[3]]$
v_4	$15[[43]] + 45[[42]] - 30[[41]] + 10[[2]]$
v_5	$\pm(54[[54]] - 27[[53]] + 30[[3]])$
v_6	$70[[69]] + 126[[68]] - 266[[67]] + 91[[66]] - 252[[65]] + 42[[64]] + 28[[63]]$ $+ 7[[62]] + 126[[61]] + 15[[43]] + 45[[42]] - 30[[41]] + 10[[2]]$

9_2 :

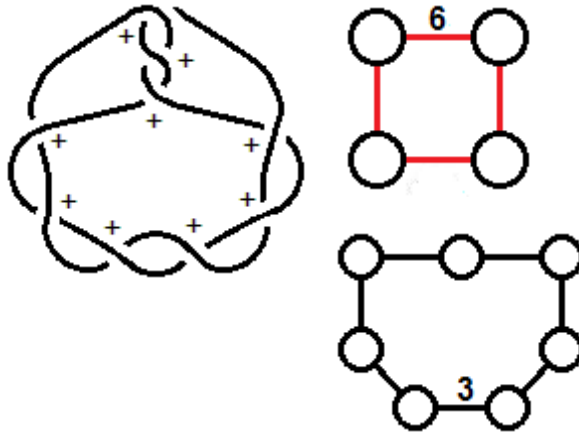


$$v_{\text{even}} = x_{9.2}$$

$$v_{\text{odd}} = \pm y_{9.2}$$

v_2	$4[[2]]$
v_3	$\pm 10[[3]]$
v_4	$3[[43]] + 10[[42]] - 10[[41]] + 4[[2]]$
v_5	$\pm(10[[54]] - 10[[53]] + 5[[52]] - 10[[51]] + 10[[3]])$
v_6	$\frac{1}{2}(10[[69]] + 10[[68]] - 20[[67]] - 5[[66]] - 13[[65]] + 3[[64]] + 5[[63]] - 7[[62]] + 10[[61]] + 6[[43]] + 20[[42]] - 20[[41]] + 8[[2]])$

\mathfrak{g}_3 :

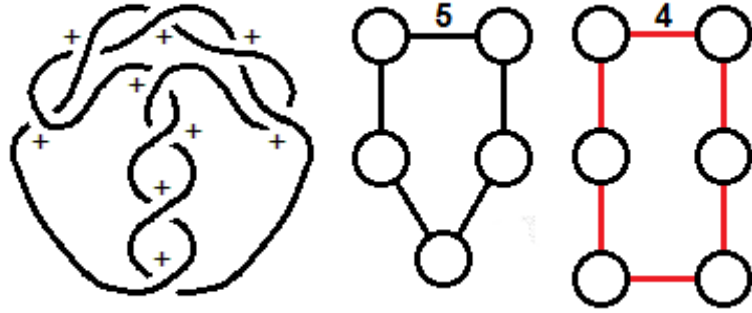


$$v_{\text{even}} = x_{9,3}$$

$$v_{\text{odd}} = \pm y_{9,3}$$

v_2	$9[[2]]$
v_3	$\pm 26[[3]]$
v_4	$\frac{1}{2}(27[[43]] + 66[[42]] - 48[[41]] + 18[[2]])$
v_5	$\pm(48[[54]] - 31[[53]] - 8[[52]] + 12[[51]] + 26[[3]])$
v_6	$\frac{1}{2}(128[[69]] + 232[[68]] - 540[[67]] + 198[[66]] - 448[[65]]$ $+ 64[[64]] + 58[[63]] - 4[[62]] + 224[[61]] + 27[[43]]$ $+ 66[[42]] - 48[[41]] + 18[[2]])$

9_4 :

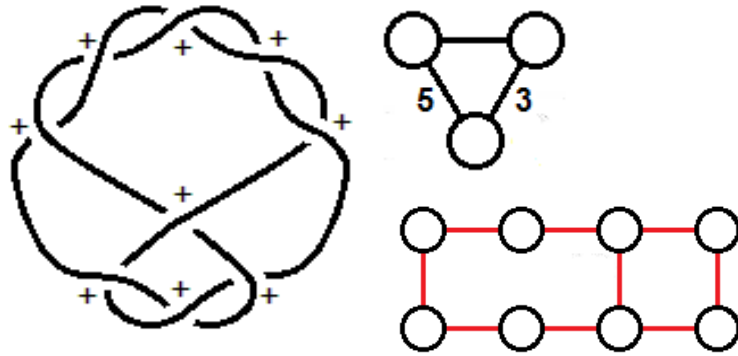


$$v_{\text{even}} = x_{9.4}$$

$$v_{\text{odd}} = \pm y_{9.4}$$

v_2	$7[[2]]$
v_3	$\pm 19[[3]]$
v_4	$9[[43]] + 20[[42]] - 17[[41]] + 7[[2]]$
v_5	$\pm(31[[54]] - 25[[53]] - 4[[52]] + 5[[51]] + 19[[3]])$
v_6	$\frac{1}{2}(73[[69]] + 127[[68]] - 312[[67]] + 111[[66]] - 232[[65]]$ $+ 29[[64]] + 34[[63]] - 12[[62]] + 117[[61]]$ $+ 18[[43]] + 40[[42]] - 34[[41]] + 14[[2]])$

9_5 :

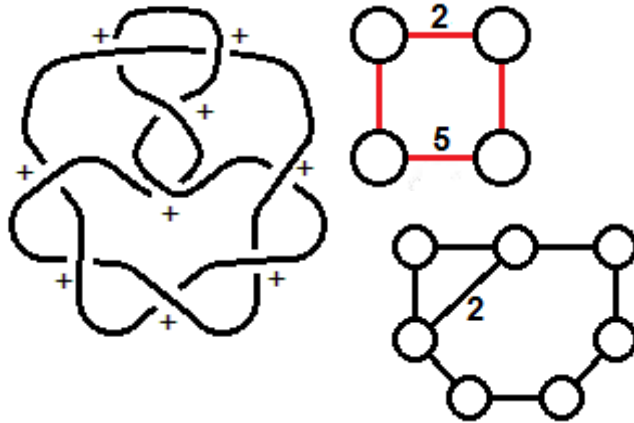


$$v_{\text{even}} = x_{9.5}$$

$$v_{\text{odd}} = \pm y_{9.5}$$

v_2	$6[[2]]$
v_3	$\pm 15[[3]]$
v_4	$\frac{1}{2}(15[[43]] + 22[[42]] - 22[[41]] + 12[[2]])$
v_5	$\pm(25[[54]] - 25[[53]] - 5[[52]] + 10[[51]] + 15[[3]])$
v_6	$\frac{1}{2}(62[[69]] + 110[[68]] - 300[[67]] + 125[[66]] - 187[[65]]$ $+ 5[[64]] + 27[[63]] - 17[[62]] + 94[[61]]$ $+ 15[[43]] + 22[[42]] - 22[[41]] + 12[[2]])$

9_6 :

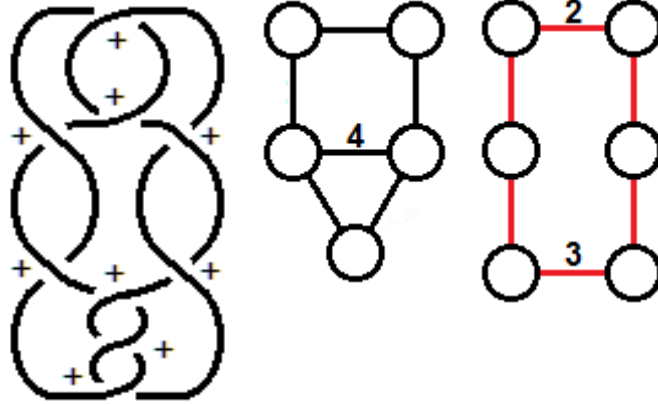


$$v_{\text{even}} = x_{9.6}$$

$$v_{\text{odd}} = \pm y_{9.6}$$

v_2	$7[[2]]$
v_3	$\pm 18[[3]]$
v_4	$\frac{1}{2}(13[[43]] + 48[[42]] - 32[[41]] + 14[[2]])$
v_5	$\pm(20[[54]] - 9[[53]] + 8[[52]] - 12[[51]] + 18[[3]])$
v_6	$\frac{1}{2}(29[[69]] + 47[[68]] - 82[[67]] + 19[[66]] - 88[[65]] + 13[[64]] + 9[[63]] + [[62]] + 44[[61]] + 13[[43]] + 48[[42]] - 32[[41]] + 14[[2]])$

$9_7:$

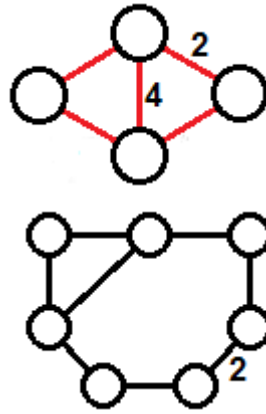
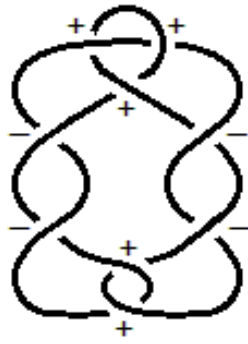


$$v_{\text{even}} = x_{9,7}$$

$$v_{\text{odd}} = \pm y_{9,7}$$

v_2	$5[[2]]$
v_3	$\pm 12[[3]]$
v_4	$\frac{1}{2}(7[[43]] + 28[[42]] - 22[[41]] + 10[[2]])$
v_5	$\pm(11[[54]] - 8[[53]] + 8[[52]] - 13[[51]] + 12[[3]])$
v_6	$\frac{1}{2}(10[[69]] + 10[[68]] - 14[[67]] - 8[[66]] - 8[[65]] - 2[[64]] + 5[[63]] - 7[[62]] + 5[[61]] + 7[[43]] + 28[[42]] - 22[[41]] + 10[[2]])$

\mathfrak{g}_8 :

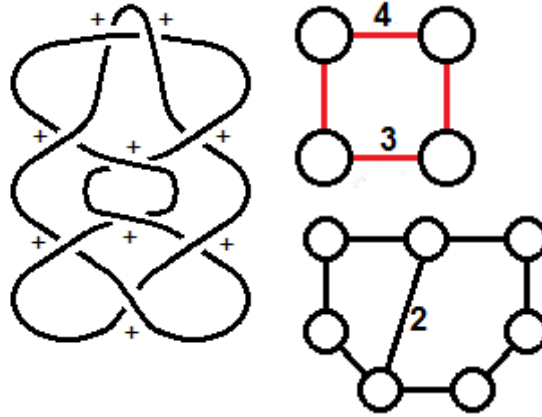


$$v_{\text{even}} = x_{9.8}$$

$$v_{\text{odd}} = \pm y_{9.8}$$

v_2	0
v_3	$\pm 2[[3]]$
v_4	$[[43]] - [[42]] - [[41]]$
v_5	$\pm ([[54]] - 3[[53]] + 3[[52]] - 3[[51]] + 2[[3]])$
v_6	$\frac{1}{2} (6[[67]] - 3[[66]] - 5[[65]] + 5[[64]] + 5[[61]] + 2[[43]] - 2[[42]] - 2[[41]])$

9_9 :

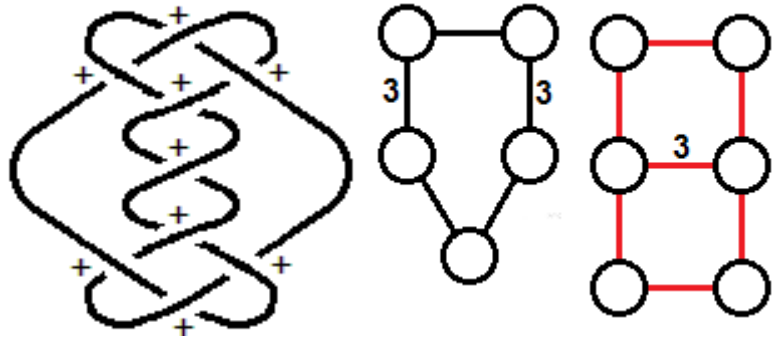


$$v_{\text{even}} = x_{9,9}$$

$$v_{\text{odd}} = \pm y_{9,9}$$

v_2	$8[[2]]$
v_3	$\pm 22[[3]]$
v_4	$10[[43]] + 28[[42]] - 20[[41]] + 8[[2]]$
v_5	$\pm(34[[54]] - 21[[53]] + 22[[3]])$
v_6	$\frac{1}{2}(77[[69]] + 135[[68]] - 302[[67]] + 101[[66]] - 256[[65]]$ $+ 37[[64]] + 35[[63]] - 3[[62]] + 128[[61]]$ $+ 20[[43]] + 56[[42]] - 40[[41]] + 16[[2]])$

9_{10} :

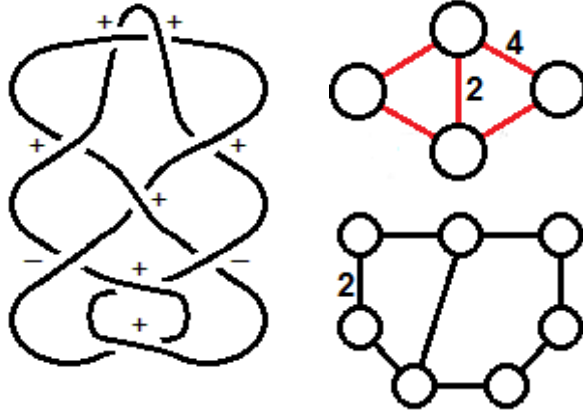


$$v_{\text{even}} = x_{9.10}$$

$$v_{\text{odd}} = \pm y_{9.10}$$

v_2	$8[[2]]$
v_3	$\pm 22[[3]]$
v_4	$12[[43]] + 22[[42]] - 18[[41]] + 8[[2]]$
v_5	$\pm(42[[54]] - 34[[53]] - 12[[52]] + 20[[51]] + 22[[3]])$
v_6	$58[[69]] + 106[[68]] - 270[[67]] + 108[[66]] - 194[[65]]$ $+ 18[[64]] + 27[[63]] - 9[[62]] + 97[[61]]$ $+ 12[[43]] + 22[[42]] - 18[[41]] + 8[[2]]$

\mathfrak{g}_{11} :

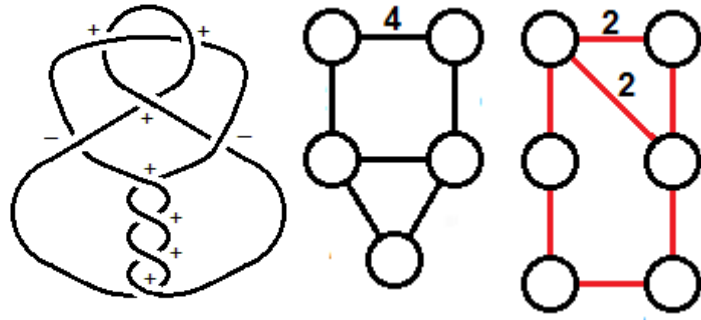


$$v_{\text{even}} = x_{9.11}$$

$$v_{\text{odd}} = \pm y_{9.11}$$

v_2	$4[[2]]$
v_3	$\pm 9[[3]]$
v_4	$\frac{1}{2}(7[[43]] + 10[[42]] - 12[[41]] + 8[[2]])$
v_5	$\pm(10[[54]] - 11[[53]] + [[51]] + 9[[3]])$
v_6	$\frac{1}{2}(16[[69]] + 28[[68]] - 74[[67]] + 30[[66]] - 48[[65]] + 4[[64]] + 7[[63]] - 7[[62]] + 25[[61]] + 7[[43]] + 10[[42]] - 12[[41]] + 8[[2]])$

\mathfrak{g}_{12} :

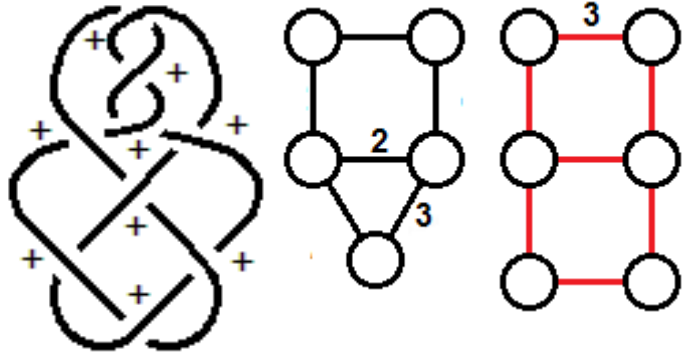


$$v_{\text{even}} = x_{9.12}$$

$$v_{\text{odd}} = \pm y_{9.12}$$

v_2	$[[2]]$
v_3	$\pm 3[[3]]$
v_4	$[[43]] + [[42]] - 3[[41]] + [[2]]$
v_5	$\pm(3[[54]] - 6[[53]] + 4[[52]] - 5[[51]] + 3[[3]])$
v_6	$\frac{1}{2}([69] - [68] + 4[67] - 5[66] + 4[65] - [64] + 2[63]$ $- 4[62] + [61] + 2[43] + 2[42] - 6[41] + 2[2])$

9_{13} :

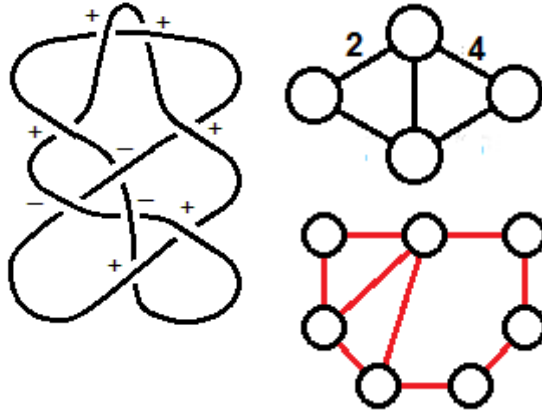


$$v_{\text{even}} = x_{9.13}$$

$$v_{\text{odd}} = \pm y_{9.13}$$

v_2	$7[[2]]$
v_3	$\pm 18[[3]]$
v_4	$\frac{1}{2}(17[[43]] + 36[[42]] - 28[[41]] + 14[[2]])$
v_5	$\pm(28[[54]] - 22[[53]] - 4[[52]] + 8[[51]] + 18[[3]])$
v_6	$\frac{1}{2}(66[[69]] + 118[[68]] - 296[[67]] + 114[[66]] - 212[[65]]$ $+ 18[[64]] + 32[[63]] - 12[[62]] + 106[[61]]$ $+ 17[[43]] + 36[[42]] - 28[[41]] + 14[[2]])$

\mathfrak{g}_{14} :

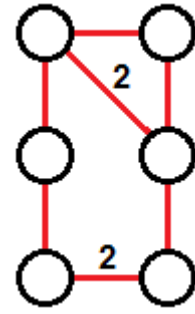
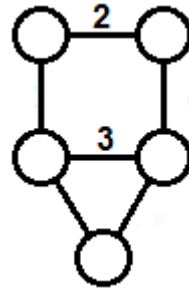
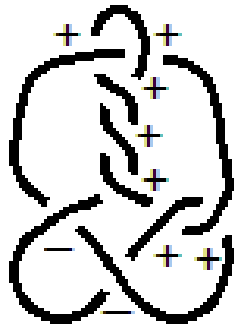


$$v_{\text{even}} = x_{9,14}$$

$$v_{\text{odd}} = \pm y_{9,14}$$

v_2	$-[[2]]$
v_3	$\mp 2[[3]]$
v_4	$\frac{1}{2}(-[[43]] + 2[[42]] + 2[[41]] - 2[[2]])$
v_5	$\mp([54] - 4[53] + 5[52] - 5[51] + 2[3])$
v_6	$\frac{1}{2}([69] + 3[68] - 12[67] + 4[66] + [65] + [63] - 3[62] - [61] - [43] + 2[42] + 2[41] - 2[2])$

9_{15} :

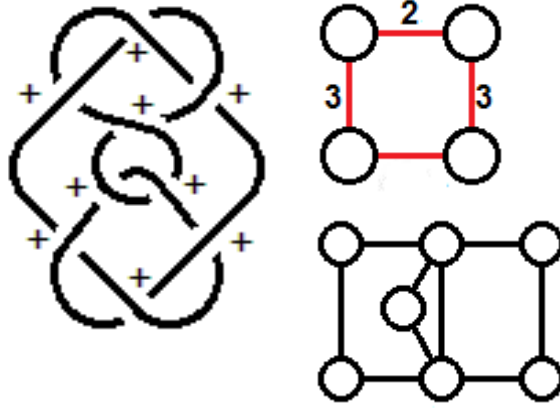


$$v_{\text{even}} = x_{9.15}$$

$$v_{\text{odd}} = \pm y_{9.15}$$

v_2	$2[[2]]$
v_3	$\pm 5[[3]]$
v_4	$\frac{1}{2}(3[[43]] + 4[[42]] - 8[[41]] + 4[[2]])$
v_5	$\pm(4[[54]] - 6[[53]] + 2[[52]] - 3[[51]] + 5[[3]])$
v_6	$\frac{1}{2}(2[[69]] + 2[[68]] - 2[[67]] - 2[[66]] - 4[[65]] + 4[[64]] + [[63]] - 3[[62]] + 5[[61]] + 3[[43]] + 4[[42]] - 8[[41]] + 4[[2]])$

\mathfrak{g}_{16} :

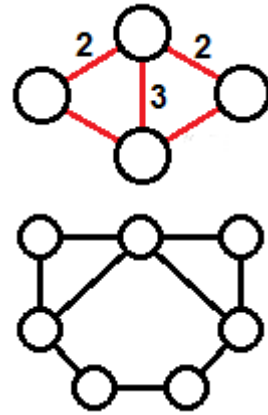


$$v_{\text{even}} = x_{9.16}$$

$$v_{\text{odd}} = \pm y_{9.16}$$

v_2	$6[[2]]$
v_3	$\pm 14[[3]]$
v_4	$4[[43]] + 18[[42]] - 11[[41]] + 6[[2]]$
v_5	$\pm(12[[54]] - 6[[53]] + 12[[52]] - 14[[51]] + 14[[3]])$
v_6	$\frac{1}{2}(12[[69]] + 13[[68]] - 20[[67]] - 3[[66]] - 2[[65]] - 10[[64]] + 6[[63]] - 8[[62]] + [[61]] + 8[[43]] + 36[[42]] - 22[[41]] + 12[[2]])$

9_{17} :

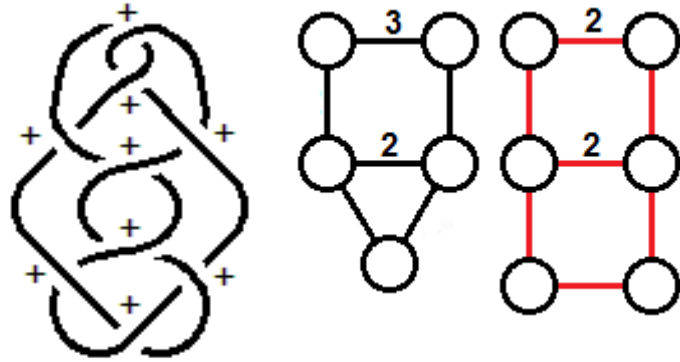


$$v_{\text{even}} = x_{9.17}$$

$$v_{\text{odd}} = \pm y_{9.17}$$

v_2	$-2[[2]]$
v_3	0
v_4	$[[43]] + [[42]] - 2[[2]]$
v_5	$\mp ([[53]] - 4[[52]] + 4[[51]])$
v_6	$\frac{1}{2}(-4[[67]] + 3[[66]] + 6[[65]] - 4[[64]] - [[63]] - 2[[62]] - 3[[61]] + [[43]] + [[42]] - 2[[2]])$

\mathfrak{g}_{18} :

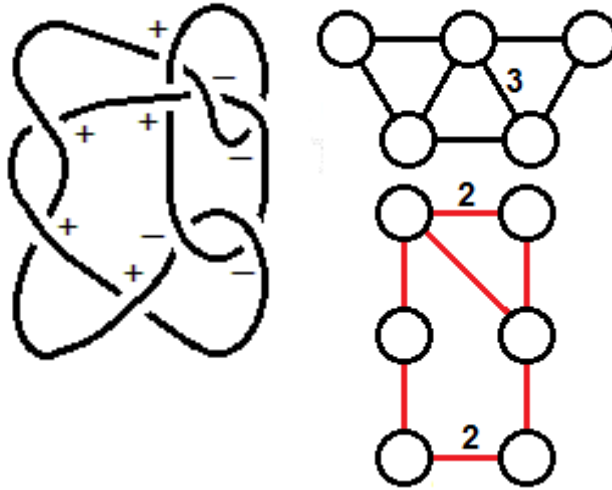


$$v_{\text{even}} = x_{9.18}$$

$$v_{\text{odd}} = \pm y_{9.18}$$

v_2	$6[[2]]$
v_3	$\pm 15[[3]]$
v_4	$\frac{1}{2}(11[[43]] + 34[[42]] - 26[[41]] + 12[[2]])$
v_5	$\pm(17[[54]] - 11[[53]] + 3[[52]] - 6[[51]] + 15[[3]])$
v_6	$\frac{1}{2}(26[[69]] + 42[[68]] - 88[[67]] + 23[[66]] - 79[[65]] + 13[[64]] + 11[[63]] - 3[[62]] + 40[[61]] + 11[[43]] + 34[[42]] - 26[[41]] + 12[[2]])$

\mathfrak{g}_{19} :

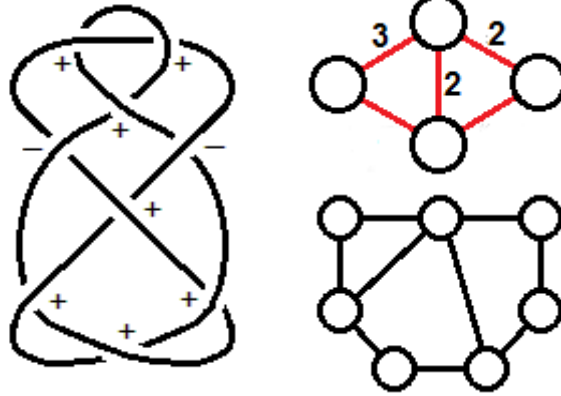


$$v_{\text{even}} = x_{9.19}$$

$$v_{\text{odd}} = \pm y_{9.19}$$

v_2	$-2[[2]]$
v_3	$\pm[[3]]$
v_4	$\frac{1}{2}([43] + 4[42] - 4[2])$
v_5	$\mp(2[53] - 5[52] + 5[51] - [3])$
v_6	$\frac{1}{2}(-10[67] + 5[66] + 13[65] - 7[64] - 6[62] - 7[61] + [43] + 4[42] - 4[2])$

9_{20} :

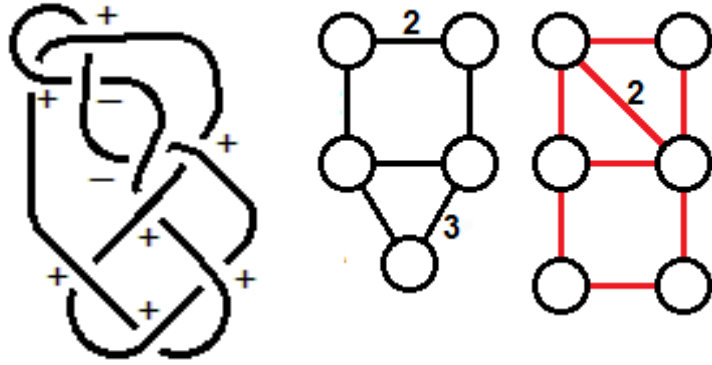


$$v_{\text{even}} = x_{9.20}$$

$$v_{\text{odd}} = \pm y_{9.20}$$

v_2	$2[[2]]$
v_3	$\pm 4[[3]]$
v_4	$[[43]] + 2[[42]] - 3[[41]] + 2[[2]]$
v_5	$\pm(3[[54]] - 5[[53]] + 4[[52]] - 5[[51]] + 4[[3]])$
v_6	$\frac{1}{2}([69] - [68] + 4[67] - 7[66] + 8[65] - 3[64] + 4[63]$ $- 6[62] - 3[61] + 2[43] + 4[42] - 6[41] + 4[2])$

\mathfrak{g}_{21} :

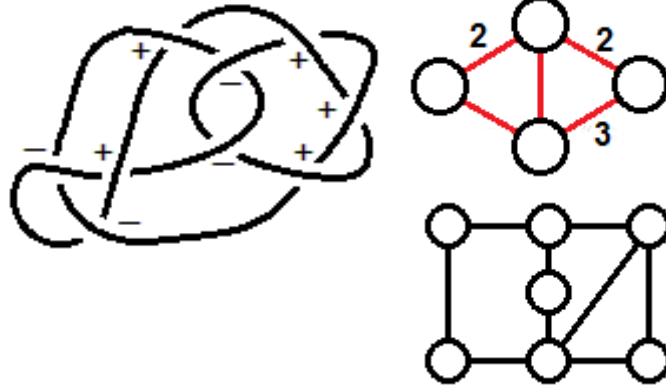


$$v_{\text{even}} = x_{9,21}$$

$$v_{\text{odd}} = \pm y_{9,21}$$

v_2	$3[[2]]$
v_3	$\pm 6[[3]]$
v_4	$\frac{1}{2} (5[[43]] + 2[[42]] - 6[[41]] + 6[[2]])$
v_5	$\pm (7[[54]] - 10[[53]] + [[52]] + [[51]] + 6[[3]])$
v_6	$\frac{1}{2} (13[[69]] + 23[[68]] - 68[[67]] + 34[[66]] - 37[[65]] - 4[[64]] + 3[[63]] - 5[[62]] + 19[[61]] + 5[[43]] + 2[[42]] - 6[[41]] + 6[[2]])$

9_{22} :

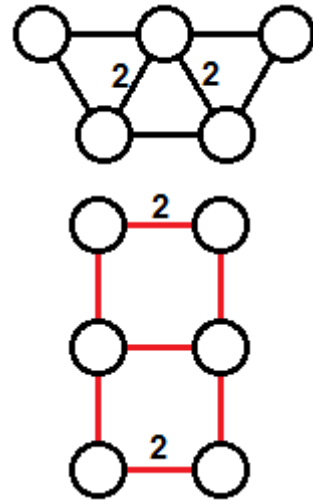


$$v_{even} = x_{9.22}$$

$$v_{odd} = \pm y_{9.22}$$

v_2	$-[[2]]$
v_3	$\pm[[3]]$
v_4	$2[[42]] - [[41]] - [[2]]$
v_5	$\mp(2[[53]] - 6[[52]] + 6[[51]] - [[3]])$
v_6	$\frac{1}{2}(-2[[69]] - 3[[68]] + 2[[67]] - [[66]] + 20[[65]] - 8[[64]] - 6[[62]] - 9[[61]] + 4[[42]] - 2[[41]] - 2[[2]])$

9_{23} :

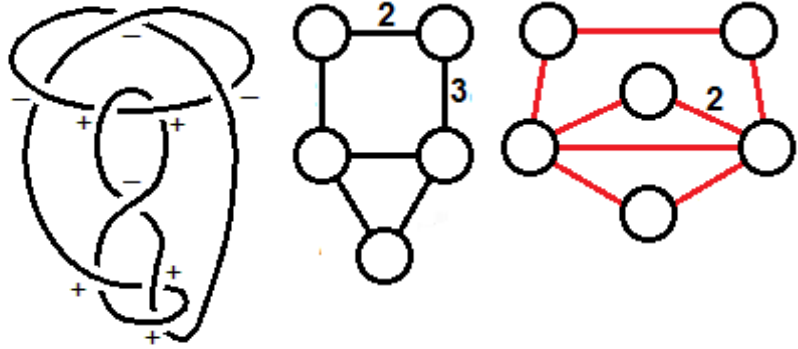


$$v_{\text{even}} = x_{9.23}$$

$$v_{\text{odd}} = \pm y_{9.23}$$

v_2	$5[[2]]$
v_3	$\pm 11[[3]]$
v_4	$3[[43]] + 12[[42]] - 8[[41]] + 5[[2]]$
v_5	$\pm(8[[54]] - 4[[53]] + 6[[52]] - 8[[51]] + 11[[3]])$
v_6	$2[[69]] + 2[[68]] - 3[[66]] - [[64]] + [[63]] - 2[[62]]$ $+ 3[[43]] + 12[[42]] - 8[[41]] + 5[[2]]$

\mathfrak{g}_{24} :

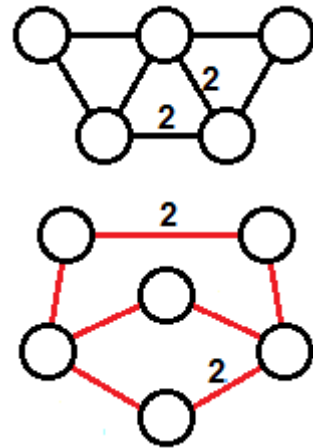
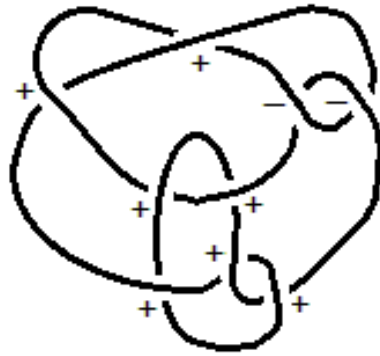


$$v_{\text{even}} = x_{9.24}$$

$$v_{\text{odd}} = \pm y_{9.24}$$

v_2	$[[2]]$
v_3	$\pm 2[[3]]$
v_4	$\frac{1}{2} ([[43]] - 2[[42]] + 2[[2]])$
v_5	$\pm ([[54]] - 3[[53]] + 4[[52]] - 3[[51]] + 2[[3]])$
v_6	$\frac{1}{2} (2[[69]] + 3[[68]] - 6[[67]] + 3[[66]] - 10[[65]] + 4[[64]] + [[63]] - [[62]] + 6[[61]] + [[43]] - 2[[42]] + 2[[2]])$

9_{25} :



$$v_{\text{even}} = x_{9.25}$$

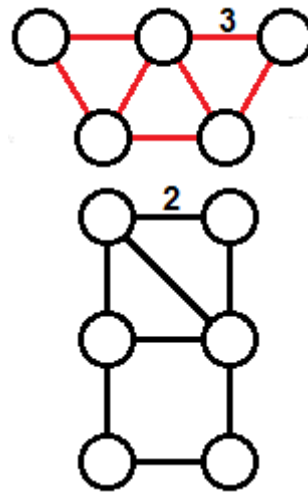
$$v_{\text{odd}} = \pm y_{9.25}$$

v_2	0
v_3	$\pm[[3]]$
v_4	$\frac{1}{2}(3[[43]] - 4[[42]] - 2[[41]])$
v_5	$\pm(2[[54]] - 3[[53]] - 2[[52]] + [[51]] + [[3]])$
v_6	$\frac{1}{2}([69] + 2[68] + 6[67] - 6[66] - 14[65] + 7[64] + 2[63] + 2[62] + 10[61] + 3[43] - 4[42] - 2[41])$

9_{26} :

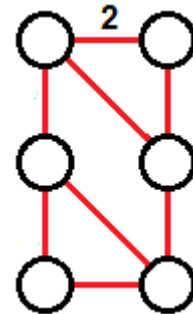
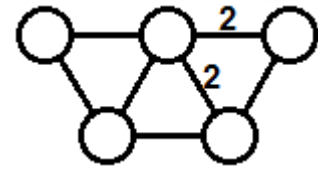
$$v_{\text{even}} = x_{9.26}$$

$$v_{\text{odd}} = \pm y_{9.26}$$



v_2	0
v_3	$\mp[[3]]$
v_4	$\frac{1}{2}(-[[43]] + 2[[41]])$
v_5	$\mp([[54]] - 3[[53]] + 4[[52]] - 4[[51]] + [[3]])$
v_6	$\frac{1}{2}([[69]] + 3[[68]] - 10[[67]] + 5[[66]] - 4[[65]] + [[64]] - [[63]] + [[62]] + 2[[61]] - [[43]] + 2[[41]])$

9₂₇:

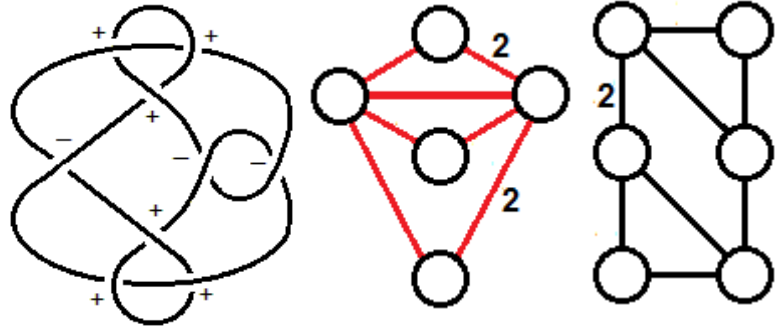


$$v_{\text{even}} = x_{9.27}$$

$$v_{\text{odd}} = \pm y_{9.27}$$

v_2	0
v_3	$\pm[[3]]$
v_4	$\frac{1}{2} ([[43]] - 2[[42]])$
v_5	$\mp ([[53]] - 3[[52]] + 3[[51]] - [[3]])$
v_6	$\frac{1}{2} (6[[67]] - 5[[66]] - 5[[65]] + 5[[64]] + 2[[63]] + 3[[61]] + [[43]] - 2[[42]])$

9₂₈:

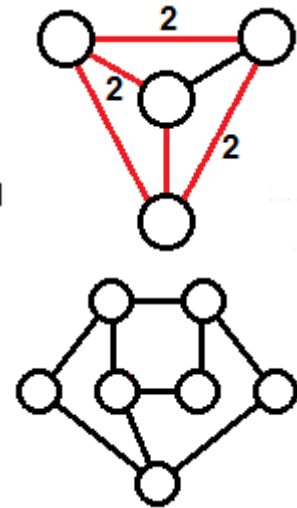
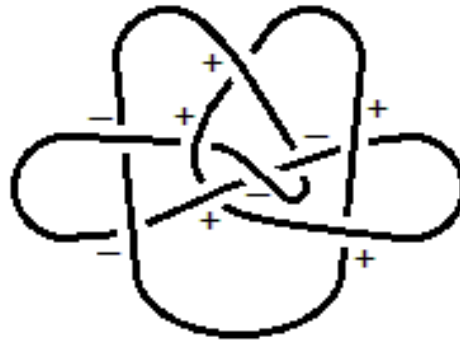


$$v_{\text{even}} = x_{9.28}$$

$$v_{\text{odd}} = \pm y_{9.28}$$

v_2	$[[2]]$
v_3	0
v_4	$\frac{1}{2}(-[[43]] + 2[[41]] + 2[[2]])$
v_5	$\mp([[52]] - 2[[51]])$
v_6	$\frac{1}{2}(2[[69]] + 3[[68]] - 12[[67]] + 4[[66]] - [[65]] - [[64]] + [[63]] - [[62]] + [[61]] - [[43]] + 2[[41]] + 2[[2]])$

9₂₉:

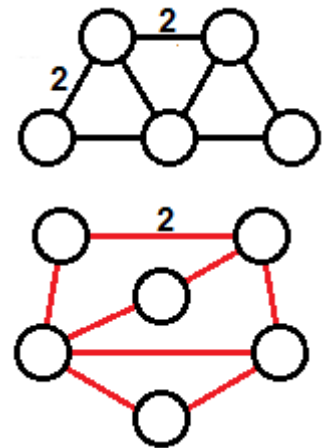
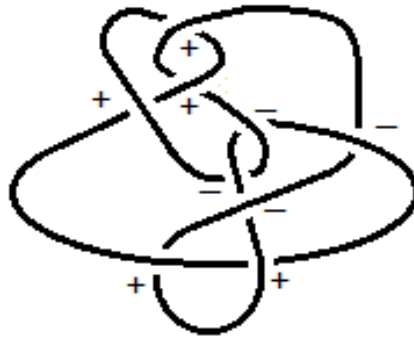


$$v_{\text{even}} = x_{9.29}$$

$$v_{\text{odd}} = \pm y_{9.29}$$

v_2	$[[2]]$
v_3	$\pm 2[[3]]$
v_4	$\frac{1}{2}(-[[43]] + 4[[42]] - 2[[41]] + 2[[2]])$
v_5	$\pm(2[[54]] - 6[[53]] + 8[[52]] - 6[[51]] + 2[[3]])$
v_6	$\frac{1}{2}(-2[[69]] - 5[[68]] + 12[[67]] - 13[[66]] + 24[[65]] - 4[[64]] + 4[[63]] - 6[[62]] - 11[[61]] - [[43]] + 4[[42]] - 2[[41]] + 2[[2]])$

9₃₀:

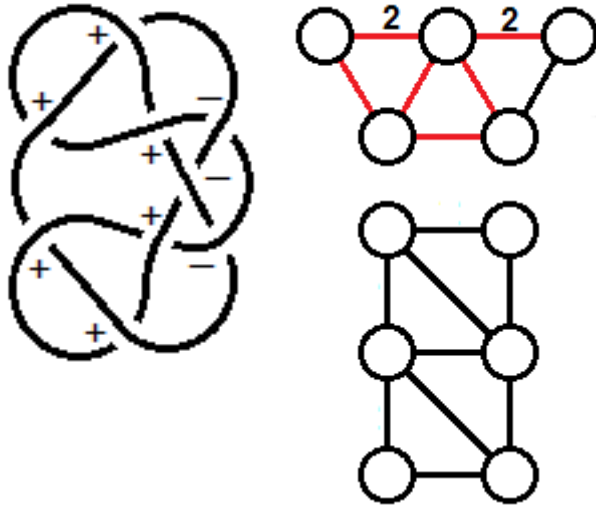


$$v_{\text{even}} = x_{9.30}$$

$$v_{\text{odd}} = \pm y_{9.30}$$

v_2	$-[[2]]$
v_3	$\pm[[3]]$
v_4	$[[43]] - [[42]] - [[2]]$
v_5	$\mp([54] - [53] - 2[52] + 3[51] - [3])$
v_6	$\frac{1}{2}(-[68] + 8[67] - 5[66] - 6[65] + 6[64] + [63]$ $+ [62] + 4[61] + 2[43] - 2[42] - 2[2])$

9₃₁:

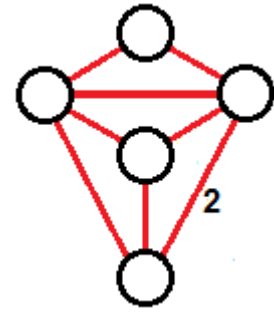
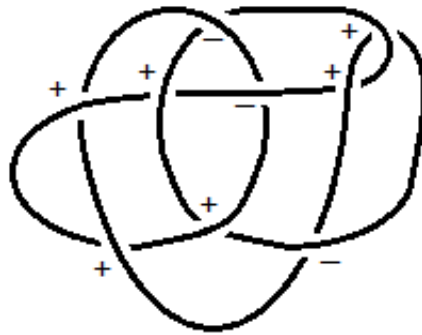


$$v_{\text{even}} = x_{9.31}$$

$$v_{\text{odd}} = \pm y_{9.31}$$

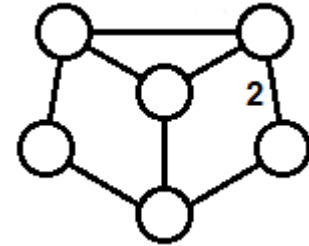
v_2	$2[[2]]$
v_3	$\pm 2[[3]]$
v_4	$[[42]] + 2[[2]]$
v_5	$\pm ([[53]] - 2[[52]] + 2[[51]] + 2[[3]])$
v_6	$-2[[67]] + 2[[66]] - [[64]] - [[63]] + [[62]] + [[42]] + 2[[2]]$

9_{32} :



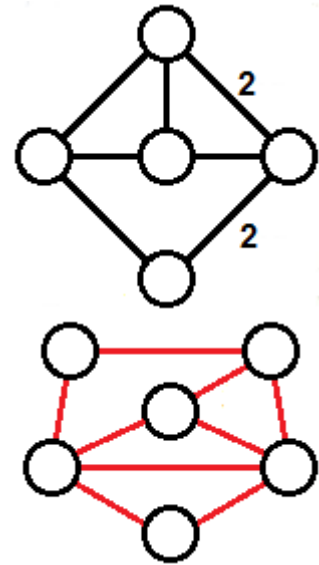
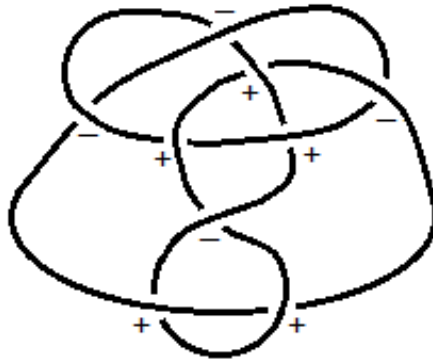
$$v_{\text{even}} = x_{9.32}$$

$$v_{\text{odd}} = \pm y_{9.32}$$



v_2	$-[[2]]$
v_3	$\mp 2[[3]]$
v_4	$14[[43]] - 2[[42]] + 2[[41]] - [[2]]$
v_5	$\pm([[54]] - 5[[52]] + 7[[51]] - 2[[3]])$
v_6	$\frac{1}{2}(6[[69]] + 11[[68]] - 28[[67]] + 10[[66]] - 21[[65]] + 5[[64]] + 2[[63]] + 2[[62]] + 10[[61]] + 28[[43]] - 4[[42]] + 4[[41]] - 2[[2]])$

9₃₃:



$$v_{\text{even}} = x_{9.33}$$

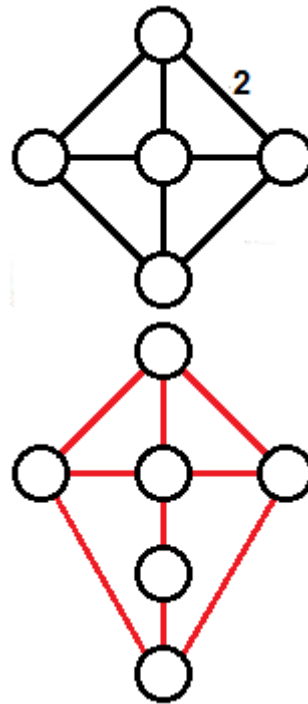
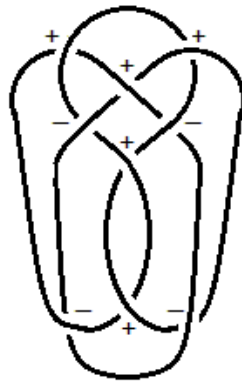
$$v_{\text{odd}} = \pm y_{9.33}$$

v_2	$[[2]]$
v_3	$\pm[[3]]$
v_4	$[[2]]$
v_5	$\pm([54] - 3[53] + 4[52] - 3[51] + [3])$
v_6	$\frac{1}{2}([69] - 2[67] + 2[66] - 4[65] + [64] + 2[61] + 2[2])$

9₃₄:

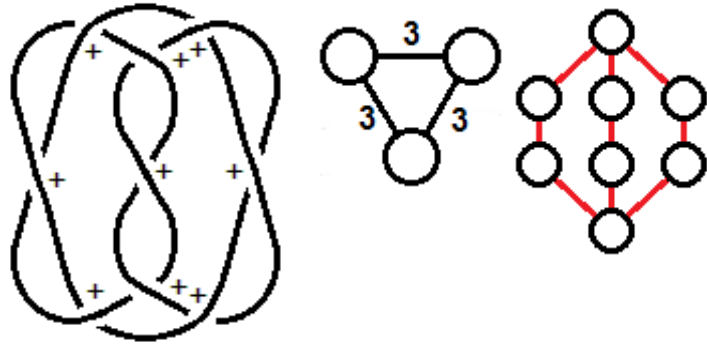
$$v_{\text{even}} = x_{9.34}$$

$$v_{\text{odd}} = \pm y_{9.34}$$



v_2	$-[[2]]$
v_3	0
v_4	$\frac{1}{2} ([[43]] - 2[[2]])$
v_5	$\pm ([[54]] - 3[[53]] + 4[[52]] - 3[[51]])$
v_6	$\frac{1}{2} ([[69]] - 2[[67]] + 2[[66]] - 4[[65]] + [[64]] + 2[[61]] + [[43]] - 2[[2]])$

9₃₅:

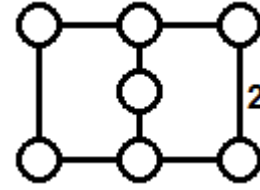
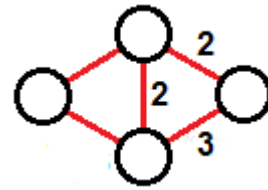
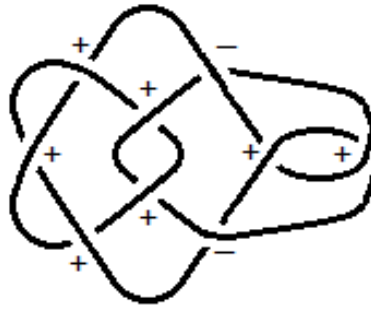


$$v_{\text{even}} = x_{9.35}$$

$$v_{\text{odd}} = \pm y_{9.35}$$

v_2	$7[[2]]$
v_3	$\pm 18[[3]]$
v_4	$\frac{1}{2}(21[[43]] + 24[[42]] - 24[[41]] + 14[[2]])$
v_5	$\pm(36[[54]] - 36[[53]] - 12[[52]] + 24[[51]] + 18[[3]])$
v_6	$\frac{1}{2}(104[[69]] + 192[[68]] - 532[[67]] + 236[[66]] - 328[[65]]$ $+ 4[[64]] + 44[[63]] - 28[[62]] + 164[[61]] + 21[[43]]$ $+ 24[[42]] - 24[[41]] + 14[[2]])$

9₃₆:

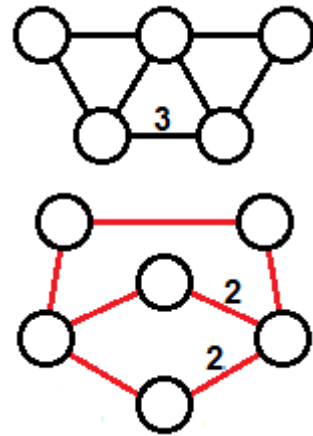
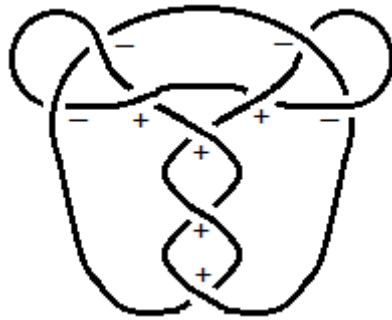


$$v_{\text{even}} = x_{9.36}$$

$$v_{\text{odd}} = \pm y_{9.36}$$

v_2	$3[[2]]$
v_3	$\pm 7[[3]]$
v_4	$2[[43]] + 5[[42]] - 6[[41]] + 3[[2]]$
v_5	$\pm(5[[54]] - 5[[53]] + 2[[52]] - 5[[51]] + 7[[3]])$
v_6	$\frac{1}{2}(-[[68]] + 12[[67]] - 11[[66]] + 6[[64]] + [[63]] - 3[[62]] + 2[[61]] + 4[[43]] + 10[[42]] - 12[[41]] + 6[[2]])$

9_{37} :



$$v_{\text{even}} = x_{9.37}$$

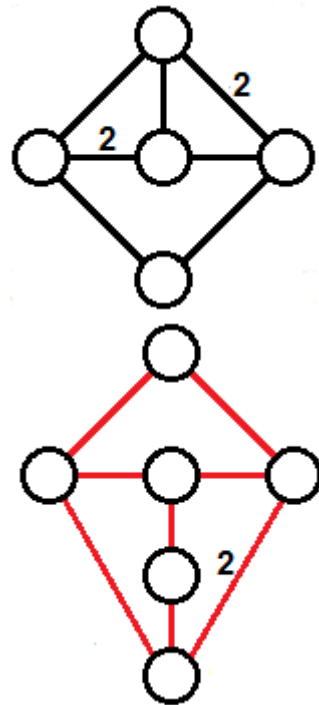
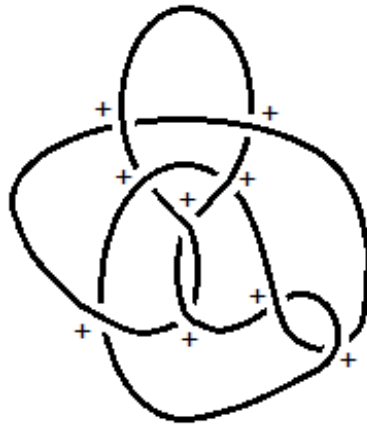
$$v_{\text{odd}} = \pm y_{9.37}$$

v_2	$-3[[2]]$
v_3	$\pm[[3]]$
v_4	$2[[43]] + [[42]] + [[41]] - 3[[2]]$
v_5	$\mp([[54]] - 4[[52]] + 5[[51]] - [[3]])$
v_6	$\frac{1}{2} ([[69]] - [[68]] - 8[[67]] + 3[[66]] + 12[[65]] - 3[[64]] - 2[[63]] - 4[[62]] - 7[[61]] + 4[[43]] + 2[[42]] + 2[[41]] - 6[[2]])$

9₃₈:

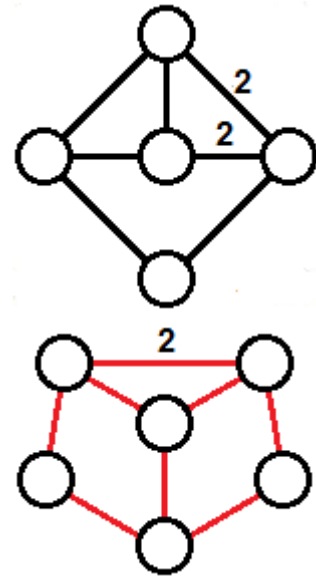
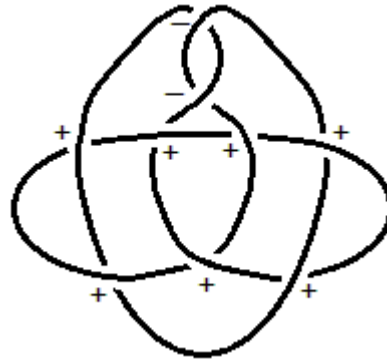
$$v_{\text{even}} = x_{9.38}$$

$$v_{\text{odd}} = \pm y_{9.38}$$



v_2	$6[[2]]$
v_3	$\pm 14[[3]]$
v_4	$5[[43]] + 15[[42]] - 10[[41]] + 6[[2]]$
v_5	$\pm(15[[54]] - 10[[53]] + 4[[52]] - 3[[51]] + 14[[3]])$
v_6	$\frac{1}{2}(25[[69]] + 40[[68]] - 96[[67]] + 34[[66]] - 68[[65]]$ $+ 3[[64]] + 12[[63]] - 6[[62]] + 34[[61]]$ $+ 10[[43]] + 30[[42]] - 20[[41]] + 12[[2]])$

9₃₉:

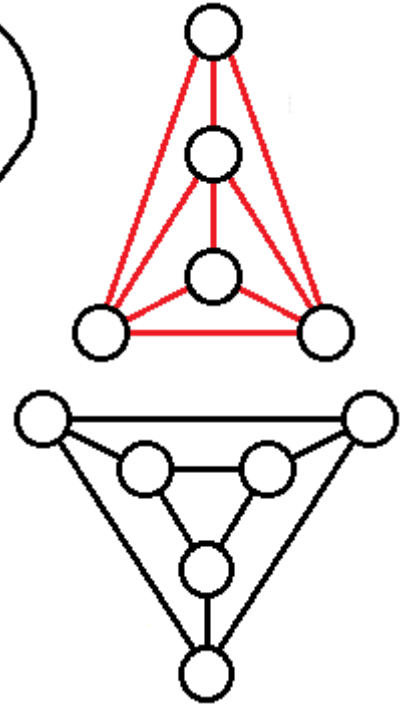
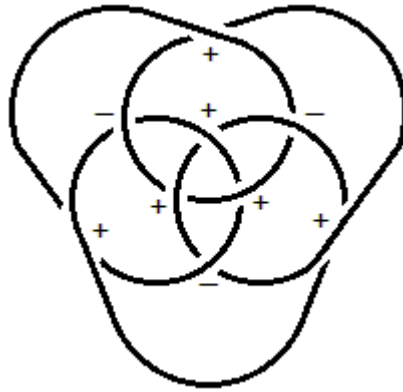


$$v_{\text{even}} = x_{9.39}$$

$$v_{\text{odd}} = \pm y_{9.39}$$

v_2	$2[[2]]$
v_3	$\pm 4[[3]]$
v_4	$2[[43]] - [[42]] - 2[[41]] + 2[[2]]$
v_5	$\pm(5[[54]] - 8[[53]] + [[51]] + 4[[3]])$
v_6	$\frac{1}{2}(9[[69]] + 16[[68]] - 44[[67]] + 22[[66]] - 30[[65]] - [[64]] + 2[[63]] - 2[[62]] + 16[[61]] + 4[[43]] - 2[[42]] - 4[[41]] + 4[[2]])$

9₄₀:

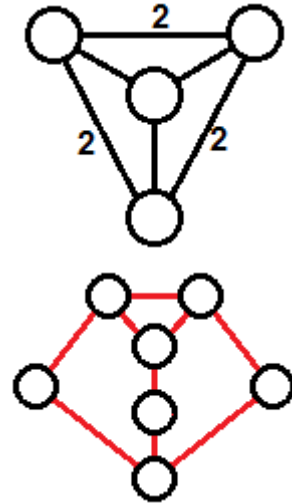
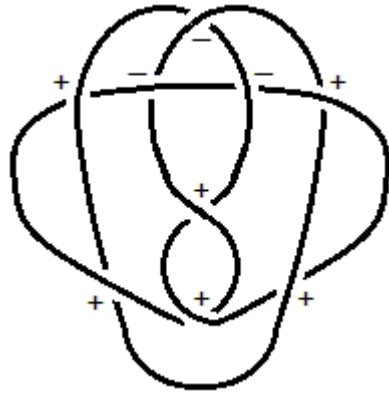


$$v_{even} = x_{9.40}$$

$$v_{odd} = \pm y_{9.40}$$

v_2	$-[[2]]$
v_3	$\mp[[3]]$
v_4	$[[43]] - 2[[42]] + [[41]] - [[2]]$
v_5	$\pm(2[[53]] - 6[[52]] + 6[[51]] - [[3]])$
v_6	$\frac{1}{2}(2[[69]] + 5[[68]] - 8[[67]] + 5[[66]] - 18[[65]] + 6[[64]] - 2[[63]] + 6[[62]] + 9[[61]] + 2[[43]] - 4[[42]] + 2[[41]] - 2[[2]])$

9₄₁:

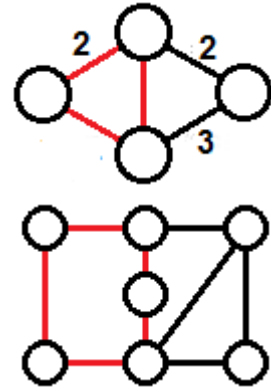


$$v_{\text{even}} = x_{9.41}$$

$$v_{\text{odd}} = \pm y_{9.41}$$

v_2	0
v_3	$\mp[[3]]$
v_4	$\frac{1}{2}(-3[[43]] + 6[[42]])$
v_5	$\mp(3[[54]] - 7[[53]] + 4[[52]] - 2[[51]] + [[3]])$
v_6	$\frac{1}{2}(-6[[69]] - 9[[68]] + 24[[67]] - 17[[66]] + 26[[65]]$ $+ 2[[63]] - 4[[62]] - 13[[61]] - 3[[43]] + 6[[42]])$

9_{42} :

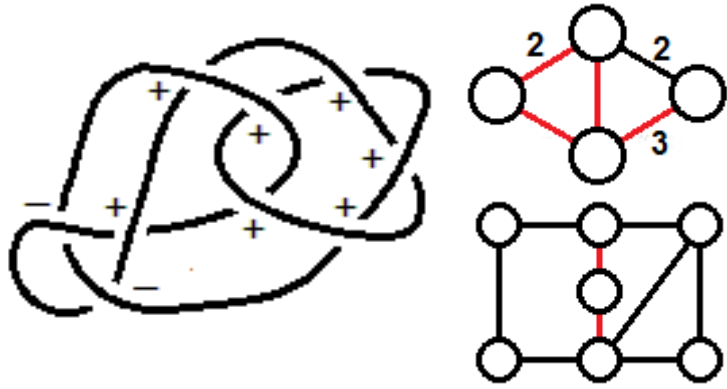


$$v_{\text{even}} = x_{9.42}$$

$$v_{\text{odd}} = \pm y_{9.42}$$

v_2	$-2[[2]]$
v_3	0
v_4	$2[[43]] - 2[[42]] + [[41]] - 2[[2]]$
v_5	0
v_6	$\frac{1}{2}(2[[69]] + [[68]] + 2[[67]] - 3[[66]] - 10[[65]] + 6[[64]] + 4[[62]] + 5[[61]] + 4[[43]] - 4[[42]] + 2[[41]] - 4[[2]])$

9_{43} :

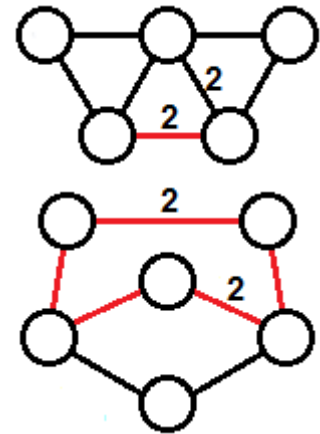
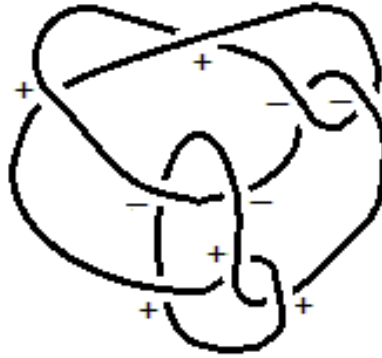


$$v_{\text{even}} = x_{9.43}$$

$$v_{\text{odd}} = \pm y_{9.43}$$

v_2	$[[2]]$
v_3	$\pm 2[[3]]$
v_4	$\frac{1}{2}(3[[43]] - 4[[42]] - 2[[41]] + 2[[2]])$
v_5	$\pm(2[[54]] - 2[[53]] - 5[[52]] + 4[[51]] + 2[[3]])$
v_6	$\frac{1}{2}(2[[69]] + 5[[68]] - 2[[67]] - 27[[65]] + 11[[64]] + [[63]] + 5[[62]] + 15[[61]] + 3[[43]] - 4[[42]] - 2[[41]] + 2[[2]])$

9₄₄:

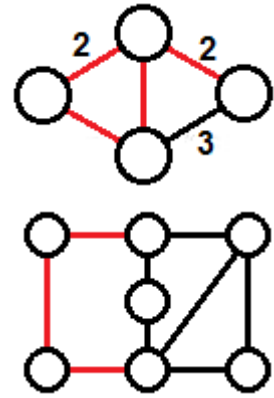
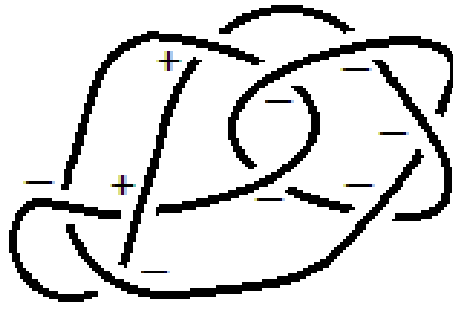


$$v_{\text{even}} = x_{9.44}$$

$$v_{\text{odd}} = \pm y_{9.44}$$

v_2	0
v_3	$\pm[[3]]$
v_4	$\frac{1}{2}(-[[43]] + 4[[42]] - 2[[41]])$
v_5	$\mp([[53]] - 3[[52]] + 3[[51]] - [[3]])$
v_6	$\frac{1}{2}(-3[[69]] - 6[[68]] + 14[[67]] - 9[[66]] + 17[[65]] - 2[[64]]$ $+ [[63]] - 3[[62]] - 8[[61]] - [[43]] + 4[[42]] - 2[[41]])$

9_{45} :

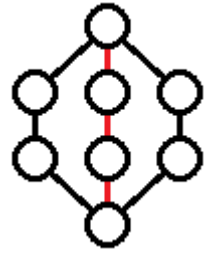
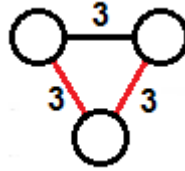
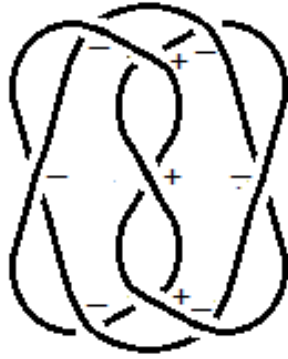


$$v_{\text{even}} = x_{9.45}$$

$$v_{\text{odd}} = \pm y_{9.45}$$

v_2	$2[[2]]$
v_3	$\mp 4[[3]]$
v_4	$[[43]] + 2[[42]] - 3[[41]] + 2[[2]]$
v_5	$\mp(2[[54]] - 2[[53]] - 2[[51]] + 4[[3]])$
v_6	$\frac{1}{2}(-2[[69]] - 3[[68]] + 14[[67]] - 9[[66]] + 4[[65]] + 2[[64]] - [[61]] + 2[[43]] + 4[[42]] - 6[[41]] + 4[[2]])$

9_{46} :



$$v_{\text{even}} = x_{9.46}$$

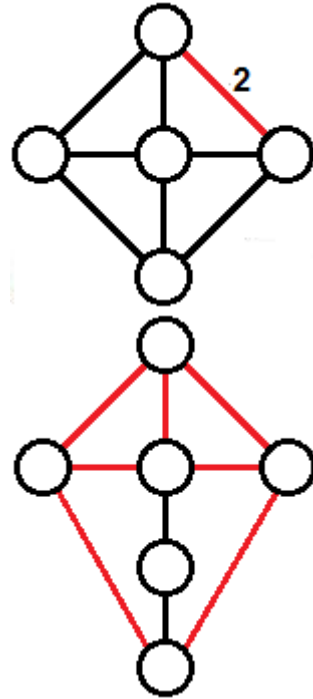
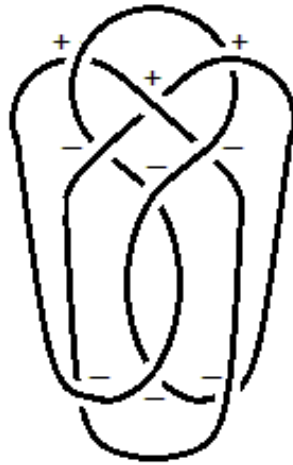
$$v_{\text{odd}} = \pm y_{9.46}$$

v_2	$-2[[2]]$
v_3	$\pm 3[[3]]$
v_4	$\frac{1}{2}(3[[43]] - 6[[42]] + 6[[41]] - 4[[2]])$
v_5	$\mp(3[[54]] - 3[[53]] - 4[[52]] + 8[[51]] - 3[[3]])$
v_6	$\frac{1}{2}(10[[69]] + 14[[68]] - 36[[67]] + 10[[66]] - 30[[65]] + 10[[64]] + 4[[63]] + 2[[62]] + 14[[61]] + 3[[43]] - 6[[42]] + 6[[41]] - 4[[2]])$

9₄₇:

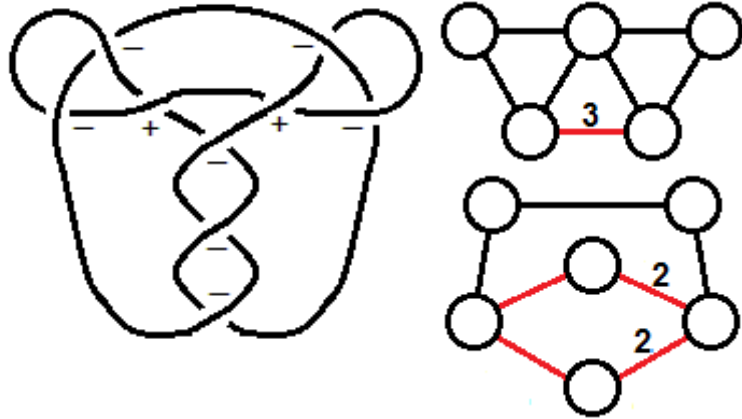
$$v_{\text{even}} = x_{9.47}$$

$$v_{\text{odd}} = \pm y_{9.47}$$



v_2	$-[[2]]$
v_3	$\pm 2[[3]]$
v_4	$\frac{1}{2}(-[[43]] + 2[[42]] + 2[[41]] - 2[[2]])$
v_5	$\mp ([[53]] - [[52]] + 2[[51]] - 2[[3]])$
v_6	$\frac{1}{2}(2[[69]] + 5[[68]] - 20[[67]] + 8[[66]] + 5[[65]] - 5[[64]] + [[63]] - 5[[62]] - 3[[61]] - [[43]] + 2[[42]] + 2[[41]] - 2[[2]])$

9_{48} :

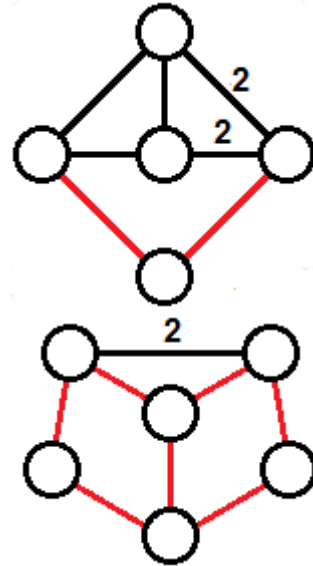
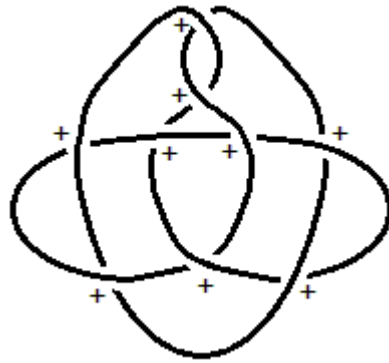


$$v_{\text{even}} = x_{9,48}$$

$$v_{\text{odd}} = \pm y_{9,48}$$

v_2	$3[[2]]$
v_3	$\mp 5[[3]]$
v_4	$2[[43]] - [[41]] + 3[[2]]$
v_5	$\mp (5[[54]] - 7[[53]] + 3[[51]] + 5[[3]])$
v_6	$\frac{1}{2}(11[[69]] + 21[[68]] - 64[[67]] + 35[[66]] - 34[[65]] - 5[[64]] + 2[[63]] - 4[[62]] + 17[[61]] + 4[[43]] - 2[[41]] + 6[[2]])$

9₄₉:



$$v_{\text{even}} = x_{9.49}$$

$$v_{\text{odd}} = \pm y_{9.49}$$

v_2	$6[[2]]$
v_3	$\pm 14[[3]]$
v_4	$6[[43]] + 12[[42]] - 9[[41]] + 6[[2]]$
v_5	$\pm(18[[54]] - 14[[53]] - 4[[52]] + 8[[51]] + 14[[3]])$
v_6	$\frac{1}{2}(38[[69]] + 69[[68]] - 178[[67]] + 73[[66]] - 126[[65]]$ $+ 10[[64]] + 18[[63]] - 6[[62]] + 63[[61]]$ $+ 12[[43]] + 24[[42]] - 18[[41]] + 12[[2]])$