```
*****************************9-CAGE-4*******************************

Edges of 9-CAGE-4:
( 12,  41) ( 36,  51) (  4,   5) ( 51,  52) ( 40,  41) ( 48,  49)
( 56,  57) ( 14,  26) ( 19,  28) ( 39,  40) ( 50,  51) ( 38,  39)
(  7,   8) ( 25,  26) ( 17,  52) ( 16,  32) ( 27,  35) ( 31,  46)
( 42,  43) ( 29,  30) ( 24,  25) ( 24,  39) ( 18,  40) ( 53,  54)
( 58,   1) ( 11,  50) ( 15,  58) ( 17,  18) (  4,  37) (  6,  47)
(  6,   7) ( 15,  16) ( 14,  15) ( 43,  54) ( 21,  22) ( 13,  14)
( 11,  12) ( 46,  47) ( 22,  23) (  5,   6) ( 32,  33) ( 55,  56)
( 20,  21) (  3,  20) (  2,  44) ( 10,  11) (  2,   3) ( 52,  53)
(  1,   9) ( 43,  44) (  7,  53) ( 12,  13) ( 45,  46) (  1,   2)
( 38,  56) ( 30,  31) ( 47,  48) ( 57,  58) ( 33,  34) ( 54,  55)
(  8,  23) ( 23,  24) (  8,   9) ( 27,  28) ( 37,  38) ( 28,  29)
( 19,  20) ( 10,  30) (  9,  10) ( 21,  49) ( 41,  42) ( 18,  19)
( 36,  37) ( 22,  33) (  3,   4) ( 34,  42) ( 44,  45) ( 16,  17)
( 29,  55) (  5,  13) ( 31,  32) ( 35,  36) ( 48,  57) ( 34,  35)
( 25,  45) ( 49,  50) ( 26,  27)
```

Chromatic polynomial relative the tree basis:

$$
\begin{aligned}
P(9-CAGE-4x) = {} & \\
& +1x*(x-1)^{57} \\
& -30x*(x-1)^{56} \\
& +465x*(x-1)^{55} \\
& -4960x*(x-1)^{54} \\
& +40920x*(x-1)^{53} \\
& -278256x*(x-1)^{52} \\
& +1623160x*(x-1)^{51} \\
& -8347680x*(x-1)^{50} \\
& +38607936x*(x-1)^{49} \\
& -163008996x*(x-1)^{48} \\
& +635702554x*(x-1)^{47} \\
& -2311325110x*(x-1)^{46} \\
& +7894568600x*(x-1)^{45} \\
& -25489895181x*(x-1)^{44} \\
& +78204703960x*(x-1)^{43} \\
& -228984688152x*(x-1)^{42} \\
& +642198752916x*(x-1)^{41} \\
& -1730414641348x*(x-1)^{40} \\
& +4491209954132x*(x-1)^{39} \\
& -11252285712463x*(x-1)^{38} \\
& +27261851346601x*(x-1)^{37} \\
& -63964745529160x*(x-1)^{36} \\
& +145514518237080x*(x-1)^{35} \\
& -321255332523287x*(x-1)^{34} \\
& +688762007171076x*(x-1)^{33} \\
& -1434714672728726x*(x-1)^{32} \\
& +2904386973187606x*(x-1)^{31} \\
& -5714365761361226x*(x-1)^{30} \\
& +10925931314127713x*(x-1)^{29} \\
& -20295525479813032x*(x-1)^{28} \\
& +36609280253009226x*(x-1)^{27} \\
& -64084294711234353x*(x-1)^{26} \\
& +108773557474949418x*(x-1)^{25} \\
& -178840811906578872x*(x-1)^{24} \\
& +284482808877157823x*(x-1)^{23} \\
& -437194200192440254x*(x-1)^{22} \\
& +648044997677037336x*(x-1)^{21} \\
& -924745582266957506x*(x-1)^{20} \\
& +1267585600529704538x*(x-1)^{19} \\
& -1664881497192310655x*(x-1)^{18} \\
& +2089269526063008036x*(x-1)^{17} \\
& -2496778932957771763x*(x-1)^{16} \\
& +2830688334011904554x*(x-1)^{15} \\
& -3031257168835774308x*(x-1)^{14} \\
& +3050358575135238916x*(x-1)^{13} \\
& -2867276842485787899x*(x-1)^{12} \\
& +2499716204058243154x*(x-1)^{11} \\
& -2004066268393911168x*(x-1)^{10} \\
& +1462280110361385155x*(x-1)^{9} \\
& -958665388752684105x*(x-1)^{8} \\
& +555578665623464869x*(x-1)^{7} \\
& -278620922830355594x*(x-1)^{6} \\
& +117453822304090295x*(x-1)^{5} \\
& -39913468205262947x*(x-1)^{4} \\
& +10237072992852295x*(x-1)^{3} \\
& -1758652601811196x*(x-1)^{2} \\
& +151464772667892x*(x-1)^{1}
\end{aligned}
$$

Chromatic polynomial relative the standard basis:

$$
\begin{aligned}
P(9-Cage-4,x) = {} & \\
-29951854193965476454x^{1} & \\
+4223540793580884156 23x^{2} & \\
-2997702488424413782442x^{3} & \\
+14292408166813484562932x^{4} & \\
-5152953169408026429 6394x^{5} & \\
+14991225985837899464 1744x^{6} & \\
-3666504680491278485 79862x^{7} & \\
+7754095173989476400 56523x^{8} & \\
-1447282256546276666 039349x^{9} & \\
+2421136360689095945 418501x^{10} & \\
-3673903990455383693 421577x^{11} & \\
+5104982301689250985 104600x^{12} & \\
-6545215463243915353 008301x^{13} & \\
+7791097102566780409 272553x^{14} & \\
-8653819182496083565 225510x^{15} & \\
+9006266420871780759 916386x^{16} & -1023266942283795x^{45} \\
-8812073034948793269 387575x^{17} & +177366493833776x^{46} \\
+8128424563580316625 461384x^{18} & -28005250296630x^{47} \\
-7084370223007724630 884040x^{19} & +4000750776688x^{48} \\
+5844416934126995941 525046x^{20} & -512916793910x^{49} \\
-4570239905507519111 142317x^{21} & +58433559486x^{50} \\
+3391283318722217423 405021x^{22} & -5843355957x^{51} \\
-2389795446858864452 126888x^{23} & +504981379x^{52} \\
+1600159430495867021 834756x^{24} & -36949857x^{53} \\
-1018376366573068612 479343x^{25} & +2225895x^{54} \\
+6160912767928141237 39266x^{26} & -105995x^{55} \\
-3542773048188666721 16913x^{27} & +3741x^{56} \\
+1935976527877570209 98798x^{28} & -87x^{57} \\
-1004949661494366632 04323x^{29} & +1x^{58} \\
+4952682389051708543 0199x^{30} & \\
-2315744954471485505 4060x^{31} & \\
+1026445028816451997 2318x^{32} & \\
-4308778297714821543 638x^{33} & \\
+1711044507232577241 883x^{34} & \\
-6419568850233243525 63x^{35} & \\
+2272299455193795231 33x^{36} & \\
-7576022243453260775 6x^{37} & \\
+2374920103705455805 4x^{38} & \\
-6985706890858743588x^{39} & \\
+1923710788143152721x^{40} & \\
-4946854727999859 36x^{41} & \\
+1184481608545908 09x^{42} & \\
-2632210050134670 0x^{43} & \\
+5408681600388544x^{44} &
\end{aligned}
$$

Roots of the chromatic polynomial of 9-CAGE-4:

$$
\begin{array}{ll}
x->0. & x->1.63605+1.68878I \\
x->1. & x->1.78697-1.61715I \\
x->2. & x->1.78697+1.61715I \\
x->2.68179 & x->1.929-1.53383I \\
x->-0.670088-1.15235I & x->1.929+1.53383I \\
x->-0.670088+1.15235I & x->2.05889-1.45659I \\
x->-0.412862-1.38892I & x->2.05889+1.45659I \\
x->-0.412862+1.38892I & x->2.15689-1.37453I \\
x->-0.179087-1.53521I & x->2.15689+1.37453I \\
x->-0.179087+1.53521I & x->2.23908-1.26957I \\
x->0.0382249-1.64579I & x->2.23908+1.26957I \\
x->0.0382249+1.64579I & x->2.32092-1.14996I \\
x->0.245771-1.73737I & x->2.32092+1.14996I \\
x->0.245771+1.73737I & x->2.40038-1.02384I \\
x->0.447599-1.81596I & x->2.40038+1.02384I \\
x->0.447599+1.81596I & x->2.47368-0.893443I \\
x->0.644217-1.87715I & x->2.47368+0.893443I \\
x->0.644217+1.87715I & x->2.53728-0.762351I \\
x->0.824189-1.89448I & x->2.53728+0.762351I \\
x->0.824189+1.89448I & x->2.58913-0.631905I \\
x->0.994838-1.87959I & x->2.58913+0.631905I \\
x->0.994838+1.87959I & x->2.62911-0.502666I \\
x->1.15922-1.84637I & x->2.62911+0.502666I \\
x->1.15922+1.84637I & x->2.65642-0.375093I \\
x->1.3217-1.8025I & x->2.65642+0.375093I \\
x->1.3217+1.8025I & x->2.67183-0.248684I \\
x->1.48031-1.74998I & x->2.67183+0.248684I \\
x->1.48031+1.74998I & x->2.67944-0.12344I \\
x->1.63605-1.68878I & x->2.67944+0.12344I
\end{array}
$$