**********9-CAGE-5**********

Edges of 9-CAGE-5:

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

Chromatic polynomial relative the tree basis:

$$
\begin{aligned}
P(9-CAGE-5,x) = {} & \\
& +1x*(x-1)^{57} \\
& -30x*(x-1)^{56} \\
& +465x*(x-1)^{55} \\
& -4960x*(x-1)^{54} \\
& +40920x*(x-1)^{53} \\
& -278256x*(x-1)^{52} \\
& +1623160x*(x-1)^{51} \\
& -8347680x*(x-1)^{50} \\
& +38607936x*(x-1)^{49} \\
& -163008999x*(x-1)^{48} \\
& +635702638x*(x-1)^{47} \\
& -2311326325x*(x-1)^{46} \\
& +7894580690x*(x-1)^{45} \\
& -25489988164x*(x-1)^{44} \\
& +78205292728x*(x-1)^{43} \\
& -228987881060x*(x-1)^{42} \\
& +642213985832x*(x-1)^{41} \\
& -1730479822102x*(x-1)^{40} \\
& +4491463746109x*(x-1)^{39} \\
& -11253195015073x*(x-1)^{38} \\
& +27264875756451x*(x-1)^{37} \\
& -63974150364260x*(x-1)^{36} \\
& +145542018978192x*(x-1)^{35} \\
& -321331308866645x*(x-1)^{34} \\
& +688961099883070x*(x-1)^{33} \\
& -1435211136398494x*(x-1)^{32} \\
& +2905568232472643x*(x-1)^{31} \\
& -5717053537541651x*(x-1)^{30} \\
& +10931790202999565x*(x-1)^{29} \\
& -20307778237287030x*(x-1)^{28} \\
& +36633890788621135x*(x-1)^{27} \\
& -64131807080251015x*(x-1)^{26} \\
& +108617601027682 60x*(x-1)^{25} \\
& -178998281986467526x*(x-1)^{24} \\
& +284753122843286391x*(x-1)^{23} \\
& -437640124312060369x*(x-1)^{22} \\
& +648751305335536127x*(x-1)^{21} \\
& -925818407012631513x*(x-1)^{20} \\
& +1269145730657304424x*(x-1)^{19} \\
& -1667049238684023791x*(x-1)^{18} \\
& +2092140263420062109x*(x-1)^{17} \\
& -2500391624998367872x*(x-1)^{16} \\
& +2834993533190722089x*(x-1)^{15} \\
& -3036095313976166658x*(x-1)^{14} \\
& +3055460832688892282x*(x-1)^{13} \\
& -2872297104202287858x*(x-1)^{12} \\
& +2504293062339214995x*(x-1)^{11} \\
& -2007900374210675197x*(x-1)^{10} \\
& +1465201486332687600x*(x-1)^{9} \\
& -960664440108058838x*(x-1)^{8} \\
& +556787456529636308x*(x-1)^{7} \\
& -279253269607077490x*(x-1)^{6} \\
& +117731827607007136x*(x-1)^{5} \\
& -40011973611863711x*(x-1)^{4} \\
& +10263409774398510x*(x-1)^{3} \\
& -1763367407929505x*(x-1)^{2} \\
& +151887710184306x*(x-1)^{1}
\end{aligned}
$$

Chromatic polynomial relative the standard basis:

$$
\begin{aligned}
P(9-Cage-5,x) = {} & \\
& -2999974783240798414 4x \\
& +42299418851492447923 6x^{2} \\
& -30019969479640293039 88x^{3} \\
& +14311705461823583833599x^{4} \\
& -51594893646318193809778x^{5} \\
& +15009026845755595147213 0x^{6} \\
& -36705641820249962484327 9x^{7} \\
& +77620650206800392160058 7x^{8} \\
& -14486563943808286162356 54x^{9} \\
& +24232482616901311587430 96x^{10} \\
& -36768303155402871214088 12x^{11} \\
& +51086706036178672439971 18x^{12} \\
& -65494735930314624375258 17x^{13} \\
& +77956251303515765028315 09x^{14} \\
& -86582738740615413012037 98x^{15} \\
& +90103353086851593521946 52x^{16} \\
& -88155332163283521707302 92x^{17} \\
& +81311701986985826584975 40x^{18} \\
& -70864065427771873903199 38x^{19} \\
& +58458303235371043741699 36x^{20} \\
& -45711588382301267916348 44x^{21} \\
& +33918432870339356703975 69x^{22} \\
& -23901153549042740593443 89x^{23} \\
& +16003307769495289517380 73x^{24} \\
& -10184623883171955635840 82x^{25} \\
& +61613173547217083113106 6x^{26} \\
& -35429511900098606369104 0x^{27} \\
& +19360498850995997878993 6x^{28} \\
& -10049778779443910227141 1x^{29} \\
& +49527836133974861450474x^{30} \\
& -23157787611475946489610x^{31} \\
& +10264555175877690342103x^{32} \\
& -43088084528813927352 02x^{33} \\
& +17110525174074218071 82x^{34} \\
& -64195884423759102737 9x^{35} \\
& +22723038500828548699 6x^{36} \\
& -75760312426854597045x^{37} \\
& +23749217765345317129x^{38} \\
& -69857096951483816 94x^{39} \\
& +19237112087419016 62x^{40} \\
& -49468552869401544 8x^{41} \\
& +11844816735670922 5x^{42} \\
& -26322101153310837x^{43} \\
& +54086816556009 36x^{44} \\
& -10232669461241 53x^{45} \\
& +17736649404444 8x^{46} \\
& -28005250305177x^{47} \\
& +4000750776916x^{48} \\
& -512916793913x^{49} \\
& +58433559486x^{50} \\
& -5843355957x^{51} \\
& +504981379x^{52} \\
& -36949857x^{53} \\
& +2225895x^{54} \\
& -105995x^{55} \\
& +3741x^{56} \\
& -87x^{57} \\
& +1x^{58}
\end{aligned}
$$

Roots of the chromatic polynomial of 9-CAGE-5:

$$
\begin{array}{ll}
x->0. & x->1.63547+1.68894I \\
x->1. & x->1.78652-1.6172I \\
x->2. & x->1.78652+1.6172I \\
x->2.68223 & x->1.92875-1.53397I \\
x->-0.67063-1.15242I & x->1.92875+1.53397I \\
x->-0.67063+1.15242I & x->2.05742-1.45692I \\
x->-0.412536-1.38839I & x->2.05742+1.45692I \\
x->-0.412536+1.38839I & x->2.15658-1.37331I \\
x->-0.179126-1.53545I & x->2.15658+1.37331I \\
x->-0.179126+1.53545I & x->2.24104-1.26826I \\
x->0.0381671-1.64606I & x->2.24104+1.26826I \\
x->0.0381671+1.64606I & x->2.32304-1.15056I \\
x->0.245687-1.73782I & x->2.32304+1.15056I \\
x->0.245687+1.73782I & x->2.4009-1.02514I \\
x->0.447413-1.81593I & x->2.4009+1.02514I \\
x->0.447413+1.81593I & x->2.47278-0.895149I \\
x->0.643902-1.87694I & x->2.47278+0.895149I \\
x->0.643902+1.87694I & x->2.53572-0.763051I \\
x->0.824066-1.89412I & x->2.53572+0.763051I \\
x->0.824066+1.89412I & x->2.58807-0.631199I \\
x->0.994636-1.8791I & x->2.58807+0.631199I \\
x->0.994636+1.8791I & x->2.62902-0.501541I \\
x->1.15975-1.84666I & x->2.62902+0.501541I \\
x->1.15975+1.84666I & x->2.65708-0.37448I \\
x->1.32188-1.80304I & x->2.65708+0.37448I \\
x->1.32188+1.80304I & x->2.67245-0.248533I \\
x->1.48088-1.7507I & x->2.67245+0.248533I \\
x->1.48088+1.7507I & x->2.67995-0.123538I \\
x->1.63547-1.68894I & x->2.67995+0.123538I
\end{array}
$$