**********9-CAGE-16**********

Edges of 9-CAGE-16:

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

Chromatic polynomial relative the tree basis:

$$
\begin{aligned}
P(9-CAGE-16,x) = {} & \\
& +1x*(x-1)^{57} \\
& -30x*(x-1)^{56} \\
& +465x*(x-1)^{55} \\
& -4960x*(x-1)^{54} \\
& +40920x*(x-1)^{53} \\
& -278256x*(x-1)^{52} \\
& +1623160x*(x-1)^{51} \\
& -8347680x*(x-1)^{50} \\
& +38607950x*(x-1)^{49} \\
& -163009411x*(x-1)^{48} \\
& +635708861x*(x-1)^{47} \\
& -2311390651x*(x-1)^{46} \\
& +7895092438x*(x-1)^{45} \\
& -25493328486x*(x-1)^{44} \\
& +78223914042x*(x-1)^{43} \\
& -229079003760x*(x-1)^{42} \\
& +642613236465x*(x-1)^{41} \\
& -1732069646176x*(x-1)^{40} \\
& +4497284289091x*(x-1)^{39} \\
& -11272968043007x*(x-1)^{38} \\
& +27327665315877x*(x-1)^{37} \\
& -64161659034293x*(x-1)^{36} \\
& +146071222061689x*(x-1)^{35} \\
& -322748608438894x*(x-1)^{34} \\
& +692575213542366x*(x-1)^{33} \\
& -1444010430568059x*(x-1)^{32} \\
& +2926069758855542x*(x-1)^{31} \\
& -5762848183761524x*(x-1)^{30} \\
& +11030002409732938x*(x-1)^{29} \\
& -20510230235754570x*(x-1)^{28} \\
& +37035341342296347x*(x-1)^{27} \\
& -64897959822969279x*(x-1)^{26} \\
& +110269326836039973x*(x-1)^{25} \\
& -181487532256426801x*(x-1)^{24} \\
& +288989227046326190x*(x-1)^{23} \\
& -444572598168045492x*(x-1)^{22} \\
& +659651232360662007x*(x-1)^{21} \\
& -942262807997235146x*(x-1)^{20} \\
& +1292911910993861480x*(x-1)^{19} \\
& -1699886121551089404x*(x-1)^{18} \\
& +2135406328693135578x*(x-1)^{17} \\
& -2554594391277040995x*(x-1)^{16} \\
& +2899328096301449136x*(x-1)^{15} \\
& -3108138635177812326x*(x-1)^{14} \\
& +3131199131867718905x*(x-1)^{13} \\
& -2946608984831729563x*(x-1)^{12} \\
& +2571867394474410548x*(x-1)^{11} \\
& -2064371863848706329x*(x-1)^{10} \\
& +1508129616863703703x*(x-1)^{9} \\
& -989972329667938375x*(x-1)^{8} \\
& +574469068565683986x*(x-1)^{7} \\
& -288481861751510667x*(x-1)^{6} \\
& +121779848511094695x*(x-1)^{5} \\
& -41443046086334242x*(x-1)^{4} \\
& +10645160065142328x*(x-1)^{3} \\
& -1831553651941087x*(x-1)^{2} \\
& +157990415842782x*(x-1)^{1}
\end{aligned}
$$

Chromatic polynomial relative the standard basis:

$$
\begin{aligned}
P(9-Cage-16,x) = \\
-307133338945987789 26x \\
+432569211908689917601x^2 \\
-3066519815218095493067x^3 \\
+14603074698771842525927x^4 \\
-5258722166942377541773 6x^5 \\
+15280927389271818783434 7x^6 \\
-37329877978667979079745 0x^7 \\
+78855211125569241547489 1x^8 \\
-14701134218011140175075 19x^9 \\
+24565136656739406954913 83x^{10} \\
-37233611849244819303739 71x^{11} \\
+51679199855979500977544 50x^{12} \\
-66186373624435903383507 56x^{13} \\
+78700576857743140959926 10x^{14} \\
-87324541318202027996559 16x^{15} \\
+90790451767668569468585 65x^{16} \\
-88748537200548430861889 37x^{17} \\
+81790150519478559403338 45x^{18} \\
-71225210756504035240006 95x^{19} \\
+58713767927291662404596 30x^{20} \\
-45881102682053837515117 92x^{21} \\
+34024015034173857242097 36x^{22} \\
-23962903683006300488300 37x^{23} \\
+16037222289757156014188 45x^{24} \\
-10202112754528851216917 81x^{25} \\
+61697816284977607179390 3x^{26} \\
-35467934880048281375871 0x^{27} \\
+19376843883625793120045 5x^{28} \\
-10056287419672650743138 2x^{29} \\
+49552063863512565551454x^{30} \\
-23166204398305362826622x^{31} \\
+10267278875977658528096x^{32} \\
-4309627636748622835178x^{33} \\
+17112809123272755226 41x^{34} \\
-64201769733654906050 4x^{35} \\
+22724435243399418961 0x^{36} \\
-75763353077320964953x^{37} \\
+23749822076236579024x^{38} \\
-6985818731844670575x^{39} \\
+19237289514354711 09x^{40} \\
-4946881117341344 78x^{41} \\
+11844850052918679 9x^{42} \\
-2632213876801059 8x^{43} \\
+5408685315503685x^{44} \\
-1023267246839826x^{45} \\
+177366514334471x^{46} \\
-28005251384656x^{47} \\
+4000750819379x^{48} \\
-512916795011x^{49} \\
+58433559500x^{50} \\
-5843355957x^{51} \\
+504981379x^{52} \\
-36949857x^{53} \\
+2225895x^{54} \\
-105995x^{55} \\
+3741x^{56} \\
-87x^{57} \\
+1x^{58}
\end{aligned}
$$

Roots of the chromatic polynomial of 9-CAGE-1:

$x- > 0.$
$x- > 1.$
$x- > 2.$
$x- > 2.68516$
$x- > -0.67766 - 1.15456I$
$x- > -0.67766 + 1.15456I$
$x- > -0.411862 - 1.38367I$
$x- > -0.411862 + 1.38367I$
$x- > -0.177827 - 1.53216I$
$x- > -0.177827 + 1.53216I$
$x- > 0.0387879 - 1.6478I$
$x- > 0.0387879 + 1.6478I$
$x- > 0.245495 - 1.7447I$
$x- > 0.245495 + 1.7447I$
$x- > 0.445445 - 1.8231I$
$x- > 0.445445 + 1.8231I$
$x- > 0.63998 - 1.8768I$
$x- > 0.63998 + 1.8768I$
$x- > 0.820034 - 1.88934I$
$x- > 0.820034 + 1.88934I$
$x- > 0.993707 - 1.87503I$
$x- > 0.993707 + 1.87503I$
$x- > 1.1607 - 1.84473I$
$x- > 1.1607 + 1.84473I$
$x- > 1.32301 - 1.80373I$
$x- > 1.32301 + 1.80373I$
$x- > 1.4818 - 1.75236I$
$x- > 1.4818 + 1.75236I$
$x- > 1.63983 - 1.69233I$
$x- > 1.63983 + 1.69233I$
$x- > 1.7914 - 1.62039I$
$x- > 1.7914 + 1.62039I$
$x- > 1.9277 - 1.5483I$
$x- > 1.9277 + 1.5483I$
$x- > 2.04434 - 1.46551I$
$x- > 2.04434 + 1.46551I$
$x- > 2.14836 - 1.367I$
$x- > 2.14836 + 1.367I$
$x- > 2.24354 - 1.25931I$
$x- > 2.24354 + 1.25931I$
$x- > 2.33013 - 1.14388I$
$x- > 2.33013 + 1.14388I$
$x- > 2.40867 - 1.02305I$
$x- > 2.40867 + 1.02305I$
$x- > 2.47809 - 0.897991I$
$x- > 2.47809 + 0.897991I$
$x- > 2.5377 - 0.770073I$
$x- > 2.5377 + 0.770073I$
$x- > 2.5868 - 0.637687I$
$x- > 2.5868 + 0.637687I$
$x- > 2.62653 - 0.505097I$
$x- > 2.62653 + 0.505097I$
$x- > 2.65578 - 0.374801I$
$x- > 2.65578 + 0.374801I$
$x- > 2.67402 - 0.246961I$
$x- > 2.67402 + 0.246961I$
$x- > 2.68293 - 0.122497I$
$x- > 2.68293 + 0.122497I$