

*****9-CAGE-18*****
Edges of 9-CAGE-18:

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

Chromatic polynomial relative the tree basis:

$$\begin{aligned}
P(9 - CAGE - 18, 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} \\
& +38607928x * (x - 1)^{49} \\
& -163008787x * (x - 1)^{48} \\
& +635699736x * (x - 1)^{47} \\
& -2311298992x * (x - 1)^{46} \\
& +7894381651x * (x - 1)^{45} \\
& -25488794388x * (x - 1)^{44} \\
& +78199157738x * (x - 1)^{43} \\
& -228960127969x * (x - 1)^{42} \\
& +642101299708x * (x - 1)^{41} \\
& -1730063076661x * (x - 1)^{40} \\
& +4490043747993x * (x - 1)^{39} \\
& -11248696171660x * (x - 1)^{38} \\
& +27251523489055x * (x - 1)^{37} \\
& -63936796888425x * (x - 1)^{36} \\
& +145443013373756x * (x - 1)^{35} \\
& -321081619838066x * (x - 1)^{34} \\
& +688359803611724x * (x - 1)^{33} \\
& -1433824433692593x * (x - 1)^{32} \\
& +2902498594963542x * (x - 1)^{31} \\
& -5710519620954845x * (x - 1)^{30} \\
& +10918399289893201x * (x - 1)^{29} \\
& -20281330989917325x * (x - 1)^{28} \\
& +36583528274460273x * (x - 1)^{27} \\
& -64039321032467545x * (x - 1)^{26} \\
& +108697982067543105x * (x - 1)^{25} \\
& -178718695930545695x * (x - 1)^{24} \\
& +284293248985635312x * (x - 1)^{23} \\
& -436911797786942076x * (x - 1)^{22} \\
& +647641639228898623x * (x - 1)^{21} \\
& -924193787133563767x * (x - 1)^{20} \\
& +1266863314778521386x * (x - 1)^{19} \\
& -1663977713308084787x * (x - 1)^{18} \\
& +2088189659492863712x * (x - 1)^{17} \\
& -2495548667707191380x * (x - 1)^{16} \\
& +2829354729282007894x * (x - 1)^{15} \\
& -3029886109721934838x * (x - 1)^{14} \\
& +3049028047739921159x * (x - 1)^{13} \\
& -2866066129523636340x * (x - 1)^{12} \\
& +2498692266877452613x * (x - 1)^{11} \\
& -2003270376398447978x * (x - 1)^{10} \\
& +1461719336950965135x * (x - 1)^9 \\
& -958313221405854235x * (x - 1)^8 \\
& +555385615088547382x * (x - 1)^7 \\
& -278530989520556275x * (x - 1)^6 \\
& +117419488396063808x * (x - 1)^5 \\
& -39903282163117395x * (x - 1)^4 \\
& +10234918456058297x * (x - 1)^3 \\
& -1758376633417907x * (x - 1)^2 \\
& +151450659331578x * (x - 1)^1
\end{aligned}$$

Chromatic polynomial relative the standard basis:

$$\begin{aligned}
P(9 - Cage - 18, x) = & \\
& -29937884794836321710x \\
& +422148219102225406853x^2 \\
& -2996175158564988072277x^3 \\
& +14284798622806499324349x^4 \\
& -51500898142702791681785x^5 \\
& +149825528006445617236237x^6 \\
& -366430408989242787789588x^7 \\
& +774929040892539810166348x^8 \\
& -1446361816890870673113561x^9 \\
& +2419566660380557759505232x^{10} \\
& -3671494020718813439519053x^{11} \\
& +5101621589708649103638250x^{12} \\
& -6540928376916143097099625x^{13} \\
& +7786065616283518724405247x^{14} \\
& -8648360993747632575218911x^{15} \\
& +9000773007063990239217646x^{16} \\
& -8806928172877457823142713x^{17} \\
& +8123930254816432078437388x^{18} \\
& -7080701663844722604285855x^{19} \\
& +5841615003397692684448566x^{20} \\
& -4568235604676965597517612x^{21} \\
& +3389939692859231930423903x^{22} \\
& -2388951061959690196977962x^{23} \\
& +1599661956299258899812461x^{24} \\
& -1018101649992307509980008x^{25} \\
& +615949141758266370196070x^{26} \\
& -354208448779019195030833x^{27} \\
& +193566446965519451240653x^{28} \\
& -100481749755763637163513x^{29} \\
& +49521599892213701355911x^{30} \\
& -23155525457214048443863x^{31} \\
& +10263791150013728949566x^{32} \\
& -4308568731757503647672x^{33} \\
& +1710982824069766014973x^{34} \\
& -641940126124611969863x^{35} \\
& +227225756807412018950x^{36} \\
& -75759263149910198495x^{37} \\
& +23749000671377640906x^{38} \\
& -6985668931596909506x^{39} \\
& +1923704308055063200x^{40} \\
& -494684483847814980x^{41} \\
& +118448027227868440x^{42} \\
& -26322084707485871x^{43} \\
& +5408679992482046x^{44} \\
& -1023266804122005x^{45} \\
& +177366484089269x^{46} \\
& -28005249754922x^{47} \\
& +4000750754430x^{48} \\
& -512916793309x^{49} \\
& +58433559478x^{50} \\
& -5843355957x^{51} \\
& +504981379x^{52} \\
& -36949857x^{53} \\
& +2225895x^{54} \\
& -105995x^{55} \\
& +3741x^{56} \\
& -87x^{57} \\
& +1x^{58}
\end{aligned}$$

Roots of the chromatic polynomial of 9-CAGE-18:

$x- > 0.$	$x- > 1.63237 + 1.69007I$
$x- > 1.$	$x- > 1.78079 - 1.61678I$
$x- > 2.$	$x- > 1.78079 + 1.61678I$
$x- > 2.68614$	$x- > 1.92387 - 1.53289I$
$x- > -0.670414 - 1.15169I$	$x- > 1.92387 + 1.53289I$
$x- > -0.670414 + 1.15169I$	$x- > 2.05304 - 1.44677I$
$x- > -0.411046 - 1.38727I$	$x- > 2.05304 + 1.44677I$
$x- > -0.411046 + 1.38727I$	$x- > 2.16722 - 1.3599I$
$x- > -0.179921 - 1.53905I$	$x- > 2.16722 + 1.3599I$
$x- > -0.179921 + 1.53905I$	$x- > 2.25741 - 1.2716I$
$x- > 0.037697 - 1.64679I$	$x- > 2.25741 + 1.2716I$
$x- > 0.037697 + 1.64679I$	$x- > 2.32662 - 1.16217I$
$x- > 0.245249 - 1.73662I$	$x- > 2.32662 + 1.16217I$
$x- > 0.245249 + 1.73662I$	$x- > 2.39523 - 1.03483I$
$x- > 0.447304 - 1.81448I$	$x- > 2.39523 + 1.03483I$
$x- > 0.447304 + 1.81448I$	$x- > 2.46414 - 0.900445I$
$x- > 0.643743 - 1.87453I$	$x- > 2.46414 + 0.900445I$
$x- > 0.643743 + 1.87453I$	$x- > 2.52804 - 0.763503I$
$x- > 0.823658 - 1.89157I$	$x- > 2.52804 + 0.763503I$
$x- > 0.823658 + 1.89157I$	$x- > 2.58371 - 0.628244I$
$x- > 0.99695 - 1.8794I$	$x- > 2.58371 + 0.628244I$
$x- > 0.99695 + 1.8794I$	$x- > 2.62784 - 0.496437I$
$x- > 1.16227 - 1.84946I$	$x- > 2.62784 + 0.496437I$
$x- > 1.16227 + 1.84946I$	$x- > 2.65797 - 0.367729I$
$x- > 1.32385 - 1.8067I$	$x- > 2.65797 + 0.367729I$
$x- > 1.32385 + 1.8067I$	$x- > 2.67573 - 0.24206I$
$x- > 1.47967 - 1.75336I$	$x- > 2.67573 + 0.24206I$
$x- > 1.47967 + 1.75336I$	$x- > 2.68396 - 0.119783I$
$x- > 1.63237 - 1.69007I$	$x- > 2.68396 + 0.119783I$