

ON MULTIDIMENSIONAL DIOPHANTINE APPROXIMATION OF ALGEBRAIC NUMBERS
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1. $x^3 - x^2 - 1$
2. $x^3 - 2$
3. $x^3 - x^2 - 7x + 8$
4. $x^3 - x^2 - 10x + 8$
5. $x^3 - 7x - 4$
6. $x^4 + x^2 - 1$
7. $x^4 + 2x^2 - 1$
8. $x^4 - x^3 - 5x^2 + 2x + 4$
9. $x^4 - x^3 - 8x^2 + x + 11$
10. $x^4 - x^3 - 24x^2 - 22x + 29$
11. $x^5 - 2x^4 + 2x^3 - x^2 + 1$
12. $x^5 - x^3 - 2x^2 + 1$
13. $x^5 - 2x^4 + x^3 + 2x^2 - 2x - 1$
14. $x^5 - x^4 - 12x^3 + 21x^2 + x - 5$
15. $x^5 - 6x^3 + 5x - 1$
16. $x^6 - x^3 - 1$
17. $x^6 - x^5 - x^4 - 2x^3 + 2x^2 + 3x - 1$
18. $x^6 - 2x^5 + x^4 - 4x^3 + 3x^2 + 3x - 1$
19. $x^6 - 9x^4 + 10x^2 - 1$
20. $x^6 - 6x^4 + 9x^2 - 3$
21. $x^7 - x^6 + x^5 + 3x^3 - x^2 + 3x + 1$
22. $x^7 - x^6 - 3x^5 + x^4 + 4x^3 - x^2 - x + 1$
23. $x^7 - 3x^5 - x^4 + x^3 + 3x^2 + x - 1$
24. $x^7 - x^6 - 7x^5 + 2x^4 + 12x^3 - 5x - 1$
25. $x^7 - 3x^6 - 3x^5 + 11x^4 + 2x^3 - 8x^2 + 1$
26. $x^8 - x^7 + x^5 - 2x^4 - x^3 + 2x^2 + 2x - 1$
27. $x^8 - 3x^7 - 2x^6 + 9x^5 - 6x^3 - 2x^2 - 3x + 1$
28. $x^8 - 3x^7 + 2x^5 + 4x^4 + 3x^3 - 5x^2 - 2x + 1$
29. $x^8 - 8x^6 + 20x^4 - 16x^2 + 1$
30. $x^8 - 8x^6 + 20x^4 - 16x^2 + 2$
31. $x^9 - 2x^6 + 4x^3 - 2$
32. $x^9 - 5x^8 - x^7 + 4x^6 + 2x^5 + 3x^4 - x^3 - 3x^2 + 1$
33. $x^9 - 3x^8 + 3x^7 + 4x^6 - 12x^5 + 9x^4 + x^3 - 9x^2 + 6x - 1$
34. $x^9 - 2x^8 - 5x^7 + 12x^6 + 3x^5 - 19x^4 + 7x^3 + 7x^2 - 2x - 1$
35. $x^9 - x^8 - 8x^7 + 7x^6 + 21x^5 - 15x^4 - 20x^3 + 10x^2 + 5x - 1$
36. $x^{10} - 2x^5 - 1$
37. $x^{10} - x^9 + 4x^7 - 2x^6 - 2x^5 - x^4 + x^3 - 2x + 1$
38. $x^{10} - 3x^9 + x^8 + x^7 - 2x^6 + 4x^5 + 5x^4 - 2x^3 - 6x^2 - x + 1$
39. $x^{10} - 6x^8 + 10x^6 - x^4 - 6x^2 + 1$
40. $x^{10} - x^9 - 10x^8 + 10x^7 + 34x^6 - 34x^5 - 43x^4 + 43x^3 + 12x^2 - 12x + 1$

Polynomial: $x^3 - x^2 - 1$

Signature: 1

Starting basis: (1.0000000, 1.4655712, 2.1478990)

Algorithm 1

Period length: 1

Pre-period length: 0

γ_{pre+1} : 0.147899

γ_{pre+1} coordinates: $(-2, 0, 1)$

$\gamma_{pre+per+1}$: NA

$\gamma_{pre+per+1}$ coordinates: NA

Norm of the first $pre + per + 1$ gammas: 1

Algorithm 2

Period length: 1

Pre-period length: 0

γ_{pre+1} : 0.216757

γ_{pre+1} coordinates: $(1, -2, 1)$

$\gamma_{pre+per+1}$: NA

$\gamma_{pre+per+1}$ coordinates: NA

Norm of the first $pre + per + 1$ gammas: 1

Back

Polynomial: $x^3 - 2$

Signature: 1

Starting basis: (1.0000000, 1.2599210, 1.5874010)

Algorithm 1

Period length: 1

Pre-period length: 1

γ_{pre+1} : -0.0103148

γ_{pre+1} coordinates: $(-5, 9, -4)$

$\gamma_{pre+per+1}$: NA

$\gamma_{pre+per+1}$ coordinates: NA

Norm of the first $pre + per + 1$ gammas: $-3, -3$

Algorithm 2

Period length: 1

Pre-period length: 1

γ_{pre+1} : -0.0103148

γ_{pre+1} coordinates: $(-5, 9, -4)$

$\gamma_{pre+per+1}$: NA

$\gamma_{pre+per+1}$ coordinates: NA

Norm of the first $pre + per + 1$ gammas: $-3, -3$

Back

Polynomial: $x^3 - x^2 - 7x + 8$

Signature: 3

Starting basis: (1.0000000, -2.6963928, 7.2705340)

Algorithm 1

Period length: 6

Pre-period length: 0

γ_{pre+1} : -0.0330732

γ_{pre+1} coordinates: (-10, -1, 1)

$\gamma_{pre+per+1}$: $1.15508 \cdot 10^{-8}$

$\gamma_{pre+per+1}$ coordinates: (26402, -2841, -4685)

Norm of the first $pre + per + 1$ gammas: -2, 1, 2, -1, 2, 1, -2

Algorithm 2

Period length: 5

Pre-period length: 0

γ_{pre+1} : -0.0330732

γ_{pre+1} coordinates: (-10, -1, 1)

$\gamma_{pre+per+1}$: $3.12488 \cdot 10^{-9}$

$\gamma_{pre+per+1}$ coordinates: (-124606, 4685, 18876)

Norm of the first $pre + per + 1$ gammas: -2, -1, -2, 4, 1, -2

Back

Polynomial: $x^3 - x^2 - 10x + 8$

Signature: 3

Starting basis: (1.0000000, -3.0838723, 9.5102687)

Algorithm 1

Period length: 12

Pre-period length: 0

γ_{pre+1} : -0.0838723

γ_{pre+1} coordinates: (3, 1, 0)

$\gamma_{pre+per+1}$: $-1.12314 \cdot 10^{-15}$

$\gamma_{pre+per+1}$ coordinates: (40694877, -44370512, -18666967)

Norm of the first $pre + per + 1$ gammas: -2, 4, 4, -1, 2, 4, -4, 1, 2, -4, 4, 1, -2

Algorithm 2

Period length: 4

Pre-period length: 0

γ_{pre+1} : -0.0838723

γ_{pre+1} coordinates: (3, 1, 0)

$\gamma_{pre+per+1}$: $-3.53763 \cdot 10^{-5}$

$\gamma_{pre+per+1}$ coordinates: (1243, 33, -120)

Norm of the first $pre + per + 1$ gammas: -2, 1, 2, 1, -2

Back

Polynomial: $x^3 - 7x - 4$

Signature: 3

Starting basis: (1.0000000, -2.2924016, 5.2551050)

Algorithm 1

Period length: 4

Pre-period length: 1

γ_{pre+1} : 0.00597087

γ_{pre+1} coordinates: (26, -7, -8)

$\gamma_{pre+per+1}$: $1.15535 \cdot 10^{-8}$

$\gamma_{pre+per+1}$ coordinates: (-18534, -45607, -16368)

Norm of the first $pre + per + 1$ gammas: -10, -10, -10, 10, -10, -10

Algorithm 2

Period length: 16

Pre-period length: 0

γ_{pre+1} : -0.160092

γ_{pre+1} coordinates: (-10, -2, 1)

$\gamma_{pre+per+1}$: $-1.15983 \cdot 10^{-18}$

$\gamma_{pre+per+1}$ coordinates: (-58315748650, -122170080922, -42196518879)

Norm of the first $pre + per + 1$ gammas: -10, -10, 2, 1, 10, -10, 2, 1, 10, 10, -2, 1, -10, 10, -2, 1, -10

Back

Polynomial: $x^4 + x^2 - 1$

Signature: 2

Starting basis: (1.0000000, 0.78615138, 0.61803399, 0.48586827)

Algorithm 1

Period length: 4

Pre-period length: 2

γ_{pre+1} : 0.000154749

γ_{pre+1} coordinates: (17, -26, 15, -12)

$\gamma_{pre+per+1}$: $1.77196 \cdot 10^{-9}$

$\gamma_{pre+per+1}$ coordinates: (5101, -6554, 3275, -4060)

Norm of the first $pre + per + 1$ gammas: -1, -1, 1, -1, 1, -1, 1

Algorithm 2

Period length: 1

Pre-period length: 1

γ_{pre+1} : -0.00266023

γ_{pre+1} coordinates: (4, -7, 4, -2)

$\gamma_{pre+per+1}$: NA

$\gamma_{pre+per+1}$ coordinates: NA

Norm of the first $pre + per + 1$ gammas: -1, -1

Back

Polynomial: $x^4 + 2x^2 - 1$

Signature: 2

Starting basis: (1.0000000, 0.64359425, 0.41421356, 0.26658547)

Algorithm 1

Period length: 12

Pre-period length: 1

γ_{pre+1} : 0.00185057

γ_{pre+1} coordinates: $(-4, 3, 5, 0)$

$\gamma_{pre+per+1}$: $3.77026 \cdot 10^{-21}$

$\gamma_{pre+per+1}$ coordinates: $(-2501077, 4992804, -1477474, -376139)$

Norm of the first $pre + per + 1$ gammas: $-1, -2, 1, 2, -1, -2, 1, 2, -1, -2, 1, 2, -1, -2$

Algorithm 2

Period length: 2

Pre-period length: 4

γ_{pre+1} : $-5.55460 \cdot 10^{-7}$

γ_{pre+1} coordinates: $(88, -7, -199, -4)$

$\gamma_{pre+per+1}$: $-1.85621 \cdot 10^{-9}$

$\gamma_{pre+per+1}$ coordinates: $(783, -576, -1870, 1359)$

Norm of the first $pre + per + 1$ gammas: $-1, -1, 2, 2, -2, 2, -2$

Back

Polynomial: $x^4 - x^3 - 5x^2 + 2x + 4$

Signature: 4

Starting basis: (1.0000000, -1.7565982 , 3.0856374 , -5.4202253)

Algorithm 1

Period length: 3

Pre-period length: 0

γ_{pre+1} : 0.00733377

γ_{pre+1} coordinates: $(5, -2, -1, 1)$

$\gamma_{pre+per+1}$: $-2.89274 \cdot 10^{-9}$

$\gamma_{pre+per+1}$ coordinates: $(-213, 934, -195, -453)$

Norm of the first $pre + per + 1$ gammas: $1, 1, 1, 1$

Algorithm 2

Period length: 3

Pre-period length: 2

γ_{pre+1} : -0.000628045

γ_{pre+1} coordinates: $(15, -2, -6, 0)$

$\gamma_{pre+per+1}$: $3.94441 \cdot 10^{-7}$

$\gamma_{pre+per+1}$ coordinates: $(81, -132, 4, 60)$

Norm of the first $pre + per + 1$ gammas: $4, 1, 1, 1, 1, 1$

Back

Polynomial: $x^4 - x^3 - 8x^2 + x + 11$

Signature: 4

Starting basis: (1.0000000, -1.8830111, 3.5457309, -6.6766507)

Algorithm 1

Period length: 4

Pre-period length: 1

γ_{pre+1} : 0.0136864

γ_{pre+1} coordinates: (4, 4, 1, 0)

$\gamma_{pre+per+1}$: $-2.56370 \cdot 10^{-6}$

$\gamma_{pre+per+1}$ coordinates: (827, 32, -864, -344)

Norm of the first $pre + per + 1$ gammas: 1, 1, 1, 1, 1, 1

Algorithm 2

Period length: 4

Pre-period length: 4

γ_{pre+1} : $-5.90803 \cdot 10^{-9}$

γ_{pre+1} coordinates: (644, -905, -312, 186)

$\gamma_{pre+per+1}$: $-6.02052 \cdot 10^{-16}$

$\gamma_{pre+per+1}$ coordinates: (11267442, -6561028, -3789722, 1525405)

Norm of the first $pre + per + 1$ gammas: -4, -4, 11, -1, 1, -1, 1, -1, 1

Back

Polynomial: $x^4 - x^3 - 24x^2 - 22x + 29$

Signature: 4

Starting basis: (1.0000000, -3.4136502, 11.653008, -39.779292)

Algorithm 1

Period length: 6

Pre-period length: 1

γ_{pre+1} : -0.0138701

γ_{pre+1} coordinates: (42, -13, -4, 1)

$\gamma_{pre+per+1}$: $1.98516 \cdot 10^{-11}$

$\gamma_{pre+per+1}$ coordinates: (-4427704, 5536031, 941737, -310506)

Norm of the first $pre + per + 1$ gammas: 191, -441, 191, -441, 191, -441, 191, -441

Algorithm 2

Period length: 6

Pre-period length: 1

γ_{pre+1} : -0.000119504

γ_{pre+1} coordinates: (-370, 402, 71, -23)

$\gamma_{pre+per+1}$: $1.92755 \cdot 10^{-16}$

$\gamma_{pre+per+1}$ coordinates: (4246685782, -5309914962, -903367628, 297791327)

Norm of the first $pre + per + 1$ gammas: -441, 191, 1, -441, 191, 1, -441, 191

Back

Polynomial: $x^5 - 2x^4 + 2x^3 - x^2 + 1$

Signature: 1

Starting basis: (1.0000000, -0.57647143, 0.33231931, -0.19157259, 0.11043612)

Algorithm 1

Period length: 12

Pre-period length: 3

γ_{pre+1} : $3.98964 \cdot 10^{-5}$

γ_{pre+1} coordinates: (11, 4, -19, 13, 1)

$\gamma_{pre+per+1}$: $1.34184 \cdot 10^{-21}$

$\gamma_{pre+per+1}$ coordinates: (-1905746, 394216, 3767480, -3946799, 1130929)

Norm of the first $pre + per + 1$ gammas: -1, -1, 1, 1, -1, -1, 1, 1, -1, -1, 1, 1, -1, -1, 1, 1

Algorithm 2

Period length: 6

Pre-period length: 7

γ_{pre+1} : $-3.40437 \cdot 10^{-14}$

γ_{pre+1} coordinates: (1939, -983, -3809, 5160, -2276)

$\gamma_{pre+per+1}$: $-7.94417 \cdot 10^{-23}$

$\gamma_{pre+per+1}$ coordinates: (-381673, 304264, 853440, -1161671, 461023)

Norm of the first $pre + per + 1$ gammas: -1, -1, 1, 1, 1, -1, 1, -1, -1, 1, -1, 1, 1, -1

Back

Polynomial: $x^5 - x^3 - 2x^2 + 1$

Signature: 3

Starting basis: (1.0000000, 0.64879067, 0.42092934, 0.27309503, 0.17718151)

Algorithm 1

Period length: 4

Pre-period length: 1

γ_{pre+1} : -0.000924150

γ_{pre+1} coordinates: (5, -6, -5, 3, 1)

$\gamma_{pre+per+1}$: $-1.87507 \cdot 10^{-9}$

$\gamma_{pre+per+1}$ coordinates: (127, 256, -434, -850, 687)

Norm of the first $pre + per + 1$ gammas: -1, 1, 1, 1, -1, 1

Algorithm 2

Period length: 5

Pre-period length: 2

γ_{pre+1} : $4.30223 \cdot 10^{-6}$

γ_{pre+1} coordinates: (-35, 65, 10, -54, 19)

$\gamma_{pre+per+1}$: $1.76043 \cdot 10^{-15}$

$\gamma_{pre+per+1}$ coordinates: (-462549, 714348, 524419, -1022671, 325258)

Norm of the first $pre + per + 1$ gammas: -1, -1, 1, -1, 1, -1, -1, 1

Back

Polynomial: $x^5 - 2x^4 + x^3 + 2x^2 - 2x - 1$

Signature: 3

Starting basis: (1.0000000, 1.3044465, 1.7015807, 2.2196211, 2.8953771)

Algorithm 1

Period length: 3

Pre-period length: 2

γ_{pre+1} : $7.75947 \cdot 10^{-6}$

γ_{pre+1} coordinates: (6, -18, 5, 21, -13)

$\gamma_{pre+per+1}$: $-6.02094 \cdot 10^{-11}$

$\gamma_{pre+per+1}$ coordinates: (-36, 490, 372, -373, -141)

Norm of the first $pre + per + 1$ gammas: -1, -1, 1, -1, 1, -1

Algorithm 2

Period length: 2

Pre-period length: 3

γ_{pre+1} : $1.22379 \cdot 10^{-6}$

γ_{pre+1} coordinates: (8, 21, 21, -19, -10)

$\gamma_{pre+per+1}$: $1.35382 \cdot 10^{-9}$

$\gamma_{pre+per+1}$ coordinates: (-27, -205, -270, 127, 163)

Norm of the first $pre + per + 1$ gammas: -1, -1, -1, 1, 1, -1

Back

Polynomial: $x^5 - x^4 - 12x^3 + 21x^2 + x - 5$

Signature: 5

Starting basis: (1.0000000, -3.7115984, 13.775963, -51.130841, 189.77715)

Algorithm 1

Period length: 4

Pre-period length: 2

γ_{pre+1} : -0.000121339

γ_{pre+1} coordinates: (-249, 579, -225, -37, 19)

$\gamma_{pre+per+1}$: $-7.28898 \cdot 10^{-10}$

$\gamma_{pre+per+1}$ coordinates: (-1110349, 2651571, -1144504, -148264, 100843)

Norm of the first $pre + per + 1$ gammas: 1, -1, -1, 1, 1, -1, -1

Algorithm 2

Period length: 12

Pre-period length: 0

γ_{pre+1} : 0.0148573

γ_{pre+1} coordinates: (-14, 10, 0, -1, 0)

$\gamma_{pre+per+1}$: $1.68265 \cdot 10^{-23}$

$\gamma_{pre+per+1}$ coordinates: (-6141559, 13159446, -6024907, -678767, 544202)

Norm of the first $pre + per + 1$ gammas: 25, 5, -1, -25, 5, 1, -25, 5, -1, -25, -5, 1, 25

Back

Polynomial: $x^5 - 6x^3 + 5x - 1$

Signature: 5

Starting basis: (1.0000000, -2.2098589, 4.8834761, -10.791793, 23.848339)

Algorithm 1

Period length: 5

Pre-period length: 0

γ_{pre+1} : 0.0215590

γ_{pre+1} coordinates: (-6, 0, 11, 0, -2)

$\gamma_{pre+per+1}$: $1.00410 \cdot 10^{-10}$

$\gamma_{pre+per+1}$ coordinates: (32440, -13336, -35319, 2450, 5745)

Norm of the first $pre + per + 1$ gammas: 1, -1, 1, -1, 1, 1

Algorithm 2

Period length: 5

Pre-period length: 0

γ_{pre+1} : 0.0215590

γ_{pre+1} coordinates: (-6, 0, 11, 0, -2)

$\gamma_{pre+per+1}$: $1.00410 \cdot 10^{-10}$

$\gamma_{pre+per+1}$ coordinates: (32440, -13336, -35319, 2450, 5745)

Norm of the first $pre + per + 1$ gammas: 1, -1, 1, -1, 1, 1

Back

Polynomial: $x^6 - x^3 - 1$

Signature: 2

Starting basis: (1.0000000, 1.1739850, 1.3782408, 1.6180340, 1.8995476, 2.2300404)

Algorithm 1

Period length: 6

Pre-period length: 8

γ_{pre+1} : $-1.86965 \cdot 10^{-18}$

γ_{pre+1} coordinates: (-19635, 23726, -29113, 14733, -16731, 17869)

$\gamma_{pre+per+1}$: $-5.49446 \cdot 10^{-28}$

$\gamma_{pre+per+1}$ coordinates: (-88699875, 103897247, -122626395, 55988865, -66111052, 76556446)

Norm of the first $pre + per + 1$ gammas: 1, 1, 1, 1, -1, 1, 1, -1, 1, -1, 1, -1, 1, -1, 1

Algorithm 2

Period length: 6

Pre-period length: 5

γ_{pre+1} : $1.93910 \cdot 10^{-15}$

γ_{pre+1} coordinates: (-2625, -2224, 1863, 1650, 1327, -1131)

$\gamma_{pre+per+1}$: $-5.18232 \cdot 10^{-30}$

$\gamma_{pre+per+1}$ coordinates: (8111865, -4211783, -16586541, -5008290, 2594162, 10254882)

Norm of the first $pre + per + 1$ gammas: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1

Back

Polynomial: $x^6 - x^5 - x^4 - 2x^3 + 2x^2 + 3x - 1$

Signature: 4

Starting basis: (1.0000000, 1.3611584, 1.8527521, 2.5218889, 3.4326902, 4.6724349)

Algorithm 1

Period length: 3

Pre-period length: 3

γ_{pre+1} : $-1.95188 \cdot 10^{-5}$

γ_{pre+1} coordinates: $(-21, 9, -4, 10, -4, 1)$

$\gamma_{pre+per+1}$: $1.15208 \cdot 10^{-8}$

$\gamma_{pre+per+1}$ coordinates: $(339, -144, -29, -141, 49, 21)$

Norm of the first $pre + per + 1$ gammas: 1, -1, -1, -1, -1, -1, -1

Algorithm 2

Period length: 4

Pre-period length: 51

γ_{pre+1} : $-8.67767 \cdot 10^{-112}$

γ_{pre+1} coordinates: $(771049691785408093332926094, -3432438867385226288997495233, 216244219887105666024703121916474484200340242911779, -3760862090968621621612586968, 1055407249299192355753108883)$

$\gamma_{pre+per+1}$: $-8.82671 \cdot 10^{-121}$

$\gamma_{pre+per+1}$ coordinates: $(439883423981584149529505054525, -1309703252138609764331845299162, -116060834701781051624046654510181610030724, 480158090121290874344631846183, -566449570571156193749690203680)$

Norm of the first $pre + per + 1$ gammas: 1, 1, 1, -1, -1, 1, -1, 1, -1, 29, 1, 1, -1, 1, -1, 1, -1, -1, 1, -1, 1, 1, -1, 1, -1, 1, -41, 1, 1, -1, 1, -1, 1, -1, 1, -29, -1, -1, 1, -1, 1, -29, -1, -1, 1, 1, -1, 1, -1, 29, 1, 1, -1, -1, 1, 1

Back

Polynomial: $x^6 - 2x^5 + x^4 - 4x^3 + 3x^2 + 3x - 1$

Signature: 4

Starting basis: (1.0000000, -0.66003487, 0.43564602, -0.28754156, 0.18978745, -0.12526634)

Algorithm 1

Period length: 4

Pre-period length: 0

γ_{pre+1} : -0.0576379

γ_{pre+1} coordinates: $(2, 0, -4, 0, -1, 1)$

$\gamma_{pre+per+1}$: $-6.36122 \cdot 10^{-7}$

$\gamma_{pre+per+1}$ coordinates: $(76, -131, -320, 2, -65, 81)$

Norm of the first $pre + per + 1$ gammas: 1, 1, 1, 1, 1

Algorithm 2

Period length: 3

Pre-period length: 0

γ_{pre+1} : -0.00835538

γ_{pre+1} coordinates: $(7, 3, -9, 1, -3, 2)$

$\gamma_{pre+per+1}$: $-4.87377 \cdot 10^{-9}$

$\gamma_{pre+per+1}$ coordinates: $(-2418, -1357, 2607, -282, 1157, -686)$

Norm of the first $pre + per + 1$ gammas: $-1, 1, -1, 1$

Back

Polynomial: $x^6 - 9x^4 + 10x^2 - 1$

Signature: 6

Starting basis: $(1.0000000, -2.7787990, 7.7217239, -21.457119, 59.625020, -165.68595)$

Algorithm 1

Period length: 1

Pre-period length: 0

γ_{pre+1} : -0.00552560

γ_{pre+1} coordinates: $(2, -7, 0, 1, 0, 0)$

$\gamma_{pre+per+1}$: NA

$\gamma_{pre+per+1}$ coordinates: NA

Norm of the first $pre + per + 1$ gammas: -1

Algorithm 2

Period length: 1

Pre-period length: 0

γ_{pre+1} : -0.00552560

γ_{pre+1} coordinates: $(2, -7, 0, 1, 0, 0)$

$\gamma_{pre+per+1}$: NA

$\gamma_{pre+per+1}$ coordinates: NA

Norm of the first $pre + per + 1$ gammas: -1

Back

Polynomial: $x^6 - 6x^4 + 9x^2 - 3$

Signature: 6

Starting basis: $(1.0000000, -1.9696155, 3.8793852, -7.6408973, 15.049630, -29.641984)$

Algorithm 1

Period length: 6

Pre-period length: 2

γ_{pre+1} : $2.80515 \cdot 10^{-5}$

γ_{pre+1} coordinates: $(8, 12, 6, 1, 0, 0)$

$\gamma_{pre+per+1}$: $-2.20734 \cdot 10^{-14}$

$\gamma_{pre+per+1}$ coordinates: $(-2852, -2754, 2358, -4029, -8550, -2907)$

Norm of the first $pre + per + 1$ gammas: $1, 1, 1, 1, 1, 1, 1, 1, 1$

Algorithm 2

Period length: 6

Pre-period length: 2

γ_{pre+1} : $-8.63204 \cdot 10^{-10}$

γ_{pre+1} coordinates: $(166, -126, -105, 147, 21, -27)$

$\gamma_{pre+per+1}$: $6.43191 \cdot 10^{-28}$

$\gamma_{pre+per+1}$ coordinates: $(-3688156, 4845960, 2884995, -4498911, -609426, 781434)$

Norm of the first $pre + per + 1$ gammas: 1, 1, 1, 1, 1, 1, 1, 1, 1

Back

Polynomial: $x^7 - x^6 + x^5 + 3x^3 - x^2 + 3x + 1$

Signature: 1

Starting basis: (1.0000000, -0.28310179, 0.080146621, -0.022689652, 0.0064234809, -0.0018184989, 0.00051482029)

Algorithm 1

Period length: 28

Pre-period length: 2

γ_{pre+1} : $-8.32398 \cdot 10^{-7}$

γ_{pre+1} coordinates: (-1, -4, -1, 1, -4, 1, -4)

$\gamma_{pre+per+1}$: $-1.95078 \cdot 10^{-67}$

$\gamma_{pre+per+1}$ coordinates: (11091325083353, 34986375304153, -9151974897172, 17896752041913, -6656523852767, -3818156952806, -21821349020864)

Norm of the first $pre + per + 1$ gammas: 7, 7, -23, 3, -1, 7, -23, 3, -1, 7, 23, 3, -1, 7, -23, 3, 1, 7, -23, 3, -1, -7, -23, 3, -1, 7, -23, -3, -1, 7, -23

Algorithm 2

Period length: 14

Pre-period length: 2

γ_{pre+1} : $2.09296 \cdot 10^{-11}$

γ_{pre+1} coordinates: (7, 18, -32, -29, -7, -23, 11)

$\gamma_{pre+per+1}$: $2.30910 \cdot 10^{-64}$

$\gamma_{pre+per+1}$ coordinates: (296652628603, 1149571479031, 619079127268, 1064643627612, 677329589305, 530325939239, -104917332341)

Norm of the first $pre + per + 1$ gammas: -81, -1, 81, 1, -81, 1, -81, 1, 81, -1, -81, -1, 81, 1, 81, -1, 81

Back

Polynomial: $x^7 - x^6 - 3x^5 + x^4 + 4x^3 - x^2 - x + 1$

Signature: 3

Starting basis: (1.0000000, 1.2937085, 1.6736816, 2.1652560, 2.8012100, 3.6239491, 4.6883335)

Algorithm 1

Period length: 12

Pre-period length: 13

γ_{pre+1} : $-1.64723 \cdot 10^{-24}$

γ_{pre+1} coordinates: (-41485, 58947, 144705, -28924, -113513, -11497, 30992)

$\gamma_{pre+per+1}$: $-8.78335 \cdot 10^{-42}$

$\gamma_{pre+per+1}$ coordinates: (-197093864726, 440586763891, -345023206212, -356854129905, 242500389393, 287060334710, -158338558503)

Norm of the first $pre + per + 1$ gammas: 1, -1, 1, -1, 1, -1, 1, -1, 1, 1, 1, -1, 1, 1, 1, 1, -1, 1, -1, -1, -1, -1, 1, -1, 1, 1

Algorithm 2

Period length: 48

Pre-period length: 4

γ_{pre+1} : $-9.49143 \cdot 10^{-16}$

γ_{pre+1} coordinates: (533, -587, -2344, -95, 2153, 253, -553)

$\gamma_{pre+per+1}$: $-4.39798 \cdot 10^{-158}$

$\gamma_{pre+per+1}$ coordinates: (-25511175276389583378012963406232581,
36069219660617694819896670659985223, 110248998976577698902053703511641807,
-15253133610592494120360938446556948, -86752517579359829270158648793772502,
-13239327018686687237390726592259127, 25242233123992798413650490666332400)

Norm of the first $pre + per + 1$ gammas: -1, -1, -1, 1, -7, -1, -1, 1, 7, 1, 1, 1, -7, -1, -1, 1, 7, 1, 1, 1,
-7, -1, 1, 1, 7, -1, -1, 1, 7, 1, 1, 1, -7, -1, -1, 1, 7, 1, 1, 1, -7, -1, -1, 1, 7, 1, -1, 1, -7, 1, 1, 1, -7

Back

Polynomial: $x^7 - 3x^5 - x^4 + x^3 + 3x^2 + x - 1$

Signature: 5

Starting basis: (1.0000000, 1.5167080, 2.3004033, 3.4890401, 5.2918553, 8.0261995, 12.173401)

Algorithm 1

Period length: 2

Pre-period length: 2

γ_{pre+1} : $-6.40636 \cdot 10^{-5}$

γ_{pre+1} coordinates: (-3, -2, 6, -2, -7, 3, 1)

$\gamma_{pre+per+1}$: $-1.48336 \cdot 10^{-7}$

$\gamma_{pre+per+1}$ coordinates: (-22, 9, 101, -20, -107, 21, 20)

Norm of the first $pre + per + 1$ gammas: -1, 1, -1, 1, -1

Algorithm 2

Period length: 8

Pre-period length: 23

γ_{pre+1} : $-3.76649 \cdot 10^{-73}$

γ_{pre+1} coordinates: (4244729460761638, 23501903408977267, -69396576050297619,
-62274030138042371, 100632613641187286, 21043868610002576, -29934860277973819)

$\gamma_{pre+per+1}$: $-1.53201 \cdot 10^{-103}$

$\gamma_{pre+per+1}$ coordinates: (-6102877382198986797261916, 729765988400892919074454,
34836242462392056267996013, 6889750265329457648954970, -38066676355991368763540760, -27610540863064
10220982923276367826537224)

Norm of the first $pre + per + 1$ gammas: -1, -47, 421, 1, -1, -1, 1, 37, 1, 1, 1, -1, 1, -1, -1, 1, -1, 1,
-1, 1, 1, 1, -1, -1, 1, 1, 1, 1, -1, -1, -1, -1

Back

Polynomial: $x^7 - x^6 - 7x^5 + 2x^4 + 12x^3 - 5x - 1$

Signature: 7

Starting basis: (1.0000000, -1.6714676, 2.7938040, -4.6697530, 7.8053409, -13.046375, 21.806593)

Algorithm 1

Period length: 6

Pre-period length: 2

γ_{pre+1} : $1.38300 \cdot 10^{-5}$

γ_{pre+1} coordinates: (9, 28, -3, -34, 9, 9, -3)

$\gamma_{pre+per+1}$: $2.64522 \cdot 10^{-15}$

$\gamma_{pre+per+1}$ coordinates: (1876, 9316, 2019, -12895, 1345, 3342, -874)

Norm of the first $pre + per + 1$ gammas: -1, 1, 1, 1, 1, 1, 1, 1, 1

Algorithm 2

Period length: 20

Pre-period length: 7

γ_{pre+1} : $-3.80980 \cdot 10^{-21}$

γ_{pre+1} coordinates: (12041, 12760, -100412, -28895, 74372, 13214, -11612)

$\gamma_{pre+per+1}$: $-8.55320 \cdot 10^{-68}$

$\gamma_{pre+per+1}$ coordinates: (-138008264879479620063, -796316847172745946642, -612548138704764380549, 1187217451096138547132, 1188825840485144328047, -54222186003674635402, -179957127800333464476)

Norm of the first $pre + per + 1$ gammas: 16, 1, 1, -1, 1, 131, -1, -1, 1, 1, 1, -1, -1, 1, 1, 1, -1, -1, 1, 1, -1, -1, 1, 1, 1, -1, -1

Back

Polynomial: $x^7 - 3x^6 - 3x^5 + 11x^4 + 2x^3 - 8x^2 + 1$

Signature: 7

Starting basis: (1.0000000, -1.5796334, 2.4952417, -3.9415672, 6.2262311, -9.8351626, 15.535951)

Algorithm 1

Period length: 3

Pre-period length: 0

γ_{pre+1} : 0.0534249

γ_{pre+1} coordinates: (1, -7, 2, 11, -3, -3, 1)

$\gamma_{pre+per+1}$: $8.14656 \cdot 10^{-6}$

$\gamma_{pre+per+1}$ coordinates: (72, -189, -65, 307, -43, -88, 26)

Norm of the first $pre + per + 1$ gammas: -1, -1, -1, 1

Algorithm 2

Period length: 12

Pre-period length: 0

γ_{pre+1} : $7.07308 \cdot 10^{-5}$

γ_{pre+1} coordinates: (13, 3, -19, -12, 10, 4, -2)

$\gamma_{pre+per+1}$: $1.10896 \cdot 10^{-54}$

$\gamma_{pre+per+1}$ coordinates: (16564303639586, 8244209290578, -32277024086450, -15037728004337, 14701576218311, 3924281478459, -2266625131972)

Norm of the first $pre + per + 1$ gammas: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1

Back

Polynomial: $x^8 - x^7 + x^5 - 2x^4 - x^3 + 2x^2 + 2x - 1$

Signature: 2

Starting basis: (1.0000000, 0.39483836, 0.15589733, 0.061554248, 0.024303978, 0.0095961430, 0.0037889254, 0.0014960131)

Algorithm 1

Period length: 66

Pre-period length: 7

γ_{pre+1} : $-2.10128 \cdot 10^{-14}$

γ_{pre+1} coordinates: (-71, 49, 248, 226, -49, 5, 74, -39)

$\gamma_{pre+per+1}$: $-5.38176 \cdot 10^{-138}$

$\gamma_{pre+per+1}$ coordinates: (37117505329755786949841, -93124845664657058385626, -47703219356712493232193, 137061842637993622173700, -54250471075135423796512, -17858880665775485849609, 50285276177111845746745, -32637538620194270701568)

Norm of the first $pre + per + 1$ gammas: 1, 41, -1, -41, -1, 4475, 1, 41, 41, 1, 41, 1, 1, 1, 41, -1, -41, 1, 41, 41, 1, 41, 1, 1, 1, 41, -1, -41, 1, 41, 41, 1, 41, 1, 1, 1, 41, -1, -41, 1, 41, 41, 1, 41, 1, 1, 1, 41, -1, -41, 1, 41, 41, 1, 41, 1, 1, 1, 41, -1, -41, 1, 41, 41, 1, 41, 1, 1, 1, 41, -1, -41, 1, 41

Algorithm 2

Period length: 12

Pre-period length: 3

γ_{pre+1} : $-2.37130 \cdot 10^{-15}$

γ_{pre+1} coordinates: (3, 26, -32, -166, 66, 38, -33, 65)

$\gamma_{pre+per+1}$: $-1.35572 \cdot 10^{-55}$

$\gamma_{pre+per+1}$ coordinates: (-383934667, 952773665, 536736824, -1439528345, 534174641, 148540844, -588746497, 333584262)

Norm of the first $pre + per + 1$ gammas: 1, 1531, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1

Back

Polynomial: $x^8 - 3x^7 - 2x^6 + 9x^5 - 6x^3 - 2x^2 - 3x + 1$

Signature: 4

Starting basis: (1.0000000, 0.25786546, 0.066494596, 0.017146660, 0.0044215313, 0.0011401602, 0.00029400794, $7.5814492 \cdot 10^{-5}$)

Algorithm 1

Period length: 4

Pre-period length: 9

γ_{pre+1} : $-3.38566 \cdot 10^{-19}$

γ_{pre+1} coordinates: (21295, -57883, -118132, 65325, 95163, -42382, -24275, 9941)

$\gamma_{pre+per+1}$: $-1.98291 \cdot 10^{-26}$

$\gamma_{pre+per+1}$ coordinates: (-4821115, 18765080, 4986764, -21788644, 3976872, 6481543, -2469886, 143858)

Norm of the first $pre + per + 1$ gammas: 61, 331, -1769, 1, 61, -269, -5, 1, 1, 1, 1, 1, 1, 1

Algorithm 2

Period length: 16

Pre-period length: 1

$$\gamma_{pre+1}: -1.66707 \cdot 10^{-10}$$
 γ_{pre+1} coordinates: $(-11, 26, 82, -46, -97, 46, 31, -13)$
$$\gamma_{pre+per+1}: 9.94449 \cdot 10^{-89}$$
$$\gamma_{pre+per+1} \text{ coordinates: } (-5274376638718711, 20593470895905860, -14172916170031929, 34047104004349898, 79767903836100705, -20432910677955642, -24815358031714701, 7339302845574662)$$

Norm of the first $pre + per + 1$ gammas: $-5, 1, -5, 1, -5, 1, -5, 1, -5, 1, -5, 1, -5, 1, -5, 1$

[Back](#)

Polynomial: $x^8 - 3x^7 + 2x^5 + 4x^4 + 3x^3 - 5x^2 - 2x + 1$

Signature: 6

Starting basis: (1.00000000, 0.31837538, 0.10136288, 0.032271447, 0.010274434, 0.0032711269, 0.0010414463, 0.00033157086)

Algorithm 1

Period length: 18

Pre-period length: 3

$$\gamma_{pre+1}: 9.17249 \cdot 10^{-7}$$

γ_{pre+1} coordinates: (6, -25, 12, 17, 17, 12, -20, 4)

 $\gamma_{pre+per+1}: 2.24398 \cdot 10^{-33}$

$\gamma_{pre+per+1}$ coordinates: (22973337, -75808490, -4280328, 39664933, 17250554, 57131546, -48365750, 6899507)

[illegible]

Algorithm 2

Period length: 48

Pre-period length: 3

$$\gamma_{pre+1}: 1.35311 \cdot 10^{-16}$$
 γ_{pre+1} coordinates: (34, -537, 1140, 578, 388, -243, -473, 187)
$$\gamma_{pre+per+1}: 5.09693 \cdot 10^{-207}$$
 $\gamma_{pre+per+1}$ coordinates: $(-431802414861736288407340489224973390625,$

1306627736133616181684180668428757885013, 776277283378677343417610493082615691426,
 -2017374966651652746587669012394673800177, 532269367978514885897701479721897724180,
 -1437724075316472095940111611632509729114, 1520595755753321106010994549526456699532,
 -383604676429944648590901906332570678881)

Norm of the first $pre + per + 1$ gammas:

1,
1, 1

[Back](#)

Polynomial: $x^8 - 8x^6 + 20x^4 - 16x^2 + 1$

Signature: 8

Starting basis: (1.0000000, -1.9828897, 3.9318517, -7.7964282, 15.459457, -30.654399, 60.784293, -120.52855)

Algorithm 1

Period length: 8

Pre-period length: 3

γ_{pre+1} : $8.57093 \cdot 10^{-8}$

γ_{pre+1} coordinates: (16, 32, 24, 8, 1, 0, 0, 0)

$\gamma_{pre+per+1}$: $-6.29629 \cdot 10^{-22}$

$\gamma_{pre+per+1}$ coordinates: (5980, -22624, -228528, -143848, 70449, -62720, -134320, -40480)

Norm of the first $pre + per + 1$ gammas: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1

Algorithm 2

Period length: 6

Pre-period length: 5

γ_{pre+1} : $2.62588 \cdot 10^{-26}$

γ_{pre+1} coordinates: (-11899, 10993, 186108, -171091, -128269, 122281, 20562, -20324)

$\gamma_{pre+per+1}$: $2.69770 \cdot 10^{-53}$

$\gamma_{pre+per+1}$ coordinates: (-3037339796, 2542141946, 46663166453, -39081763142, -31044898682, 26409282811, 4850605265, -4269234894)

Norm of the first $pre + per + 1$ gammas: 241, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1

Back

Polynomial: $x^8 - 8x^6 + 20x^4 - 16x^2 + 2$

Signature: 8

Starting basis: (1.0000000, -1.9615706, 3.8477591, -7.5476509, 14.805250, -29.041542, 56.967034, -111.74486)

Algorithm 1

Period length: 3

Pre-period length: 14

γ_{pre+1} : $-5.95189 \cdot 10^{-24}$

γ_{pre+1} coordinates: (-3464015, -2146795, 26616203, 16094630, -25236905, -15213190, 4821523, 2904177)

$\gamma_{pre+per+1}$: $8.26181 \cdot 10^{-29}$

$\gamma_{pre+per+1}$ coordinates: (-153207359, -91125484, 1168468969, 700981807, -1106908368, -664888692, 211443107, 127051821)

Norm of the first $pre + per + 1$ gammas: 2, 4, -1, -2, -4, 1, 2, 4, 8, 16, -1, 1, -1, 1, -1, 1, -1, 1

Algorithm 2

Period length: 8

Pre-period length: 3

γ_{pre+1} : $-5.85676 \cdot 10^{-18}$

γ_{pre+1} coordinates: (-7027, 17647, 11200, -25490, -5031, 10605, 667, -1348)

$\gamma_{pre+per+1}$: $-1.22845 \cdot 10^{-53}$

$\gamma_{pre+per+1}$ coordinates: (-8593484459401, 22027169205285, 12295909342056, -31535162636746, -5126728918619, 13162769793613, 652376350429, -1677740981904)

Norm of the first $pre + per + 1$ gammas: 1, -1, 1, -1, 1, -1, 1, -1, 1, -1, 1, -1

Back

Polynomial: $x^9 - 2x^6 + 4x^3 - 2$

Signature: 1

Starting basis: (1.0000000, 0.86127848, 0.74180063, 0.63889692, 0.55026817, 0.47393414, 0.40818927, 0.35156464, 0.30279506)

Algorithm 1

Period length: 41

Pre-period length: 63

γ_{pre+1} : $-1.81896 \cdot 10^{-117}$

γ_{pre+1} coordinates: (80178123915788351460, -290114965913665449538 , 325582805516344668218 , -388932551569 , 657367096199957009499 , -596050248467705505977 ,

412330701785454946722 , -318167237008110425650 , 135304995094966841486)

$\gamma_{pre+per+1}$: $-2.96116 \cdot 10^{-194}$

$\gamma_{pre+per+1}$ coordinates: (70632161043983150983446764381723766, $-22016371877983143083630683077389075$, $-19416639638007274414162955355173483$, $-100755388143411602842842372066998525$, $4191620017857110437372010235396584$, $63380154223892581502072863569784965$, $-15335664932318871357009641326851231$, $47375960134607136070271650296450624$, $-51634736670974861136542968382501882$)

Norm of the first $pre + per + 1$ gammas: 1, 9, 1, 1, 1, -46 , -108 , -1 , 72, 9, 1, 1, 9, 1, -1 , 1, -46 , 108, -1 , -72 , 9, 1, 1, -9 , 1, -1 , -1 , -46 , 108, -1 , -72 , 9, 1, 1, 9, 1, -1 , 1, 46, 108, -1 , -72 , 9, 1, -1 , -9 , -1 , -1 , -1 , -46 , 108, 1, -72 , -9 , -1 , 1, -9 , 1, 1, -1 , 46, -108 , -1 , 72, 9, -1 , -1 , -9 , -1 , 1, -1 , -46 , -108 , 1, 72, -9 , 1, 1, -9 , 1, -1 , -1 , -46 , 108, -1 , -72 , 9, -1 , 1, 9, 1, 1, 1, -46

Algorithm 2

Period length: 45

Pre-period length: 17

γ_{pre+1} : $-5.48383 \cdot 10^{-108}$

γ_{pre+1} coordinates: (10725265965286, -25495877647230 , 5490747438823 , 15260724219426 , -18633719213642 , -11999108190205 , 19852180742548 , 18649623600816 , -4322892810216)

$\gamma_{pre+per+1}$: $-2.02130 \cdot 10^{-380}$

$\gamma_{pre+per+1}$ coordinates: (319028373704718223877958104105014906140500531567428, $-11406566057635222632073453258712662937999912828596$, $-200456697840964575650210016742711698672995756915649$, $-684452802016135358131274087417335006771809294861297$, $579661276996596802760845931956769162083222586798148$, $344631139262982568866719801755629067201775528897234$, $-77334476923155102427023746068181407468820395674230$, $-354352857416949645617002751808990045231373290558511$, $128968562164429099995597971204290828349608078501699$)

Norm of the first $pre + per + 1$ gammas: -5688 , -41 , -6151261 , 1, -173 , -2 , -2 , -166 , 1, 173, -2 , 92, -385401501981 , 163, -1 , 2, 1, -1636 , -692 , 1, 2, -1 , -1636 , 692, -1 , -2 , -1 , -1636 , -692 , -1 , 2, -1 , 1636, 692, -1 , 2, -1 , -1636 , 692, 1, 2, 1, 1636, 692, -1 , 2, 1, 1636, 692, 1, -2 , 1, 1636, -692 , 1, -2 , -1 , 1636, -692 , 1, -2 , 1, -1636

Back

Polynomial: $x^9 - 5x^8 - x^7 + 4x^6 + 2x^5 + 3x^4 - x^3 - 3x^2 + 1$

Signature: 3

Starting basis: (1.0000000, 1.1294112, 1.2755696, 1.4406426, 1.6270779, 1.8376400, 2.0754512, 2.3440378, 2.6473825)

Algorithm 1

Period length: 10

Pre-period length: 0

γ_{pre+1} : 0.0247541

γ_{pre+1} coordinates: $(-1, 2, 3, -8, 1, -4, -4, 11, -2)$

$\gamma_{pre+per+1}$: $2.13853 \cdot 10^{-18}$

$\gamma_{pre+per+1}$ coordinates: (138167, 736045, -2567689, 1595444, 361523, -194776, 2649709, -2997512, 492554)

Norm of the first $pre + per + 1$ gammas: $-1, -1, -1, -1, -1, 1, 1, 1, 1, -1$

Algorithm 2

Period length: 59

Pre-period length: 63

γ_{pre+1} : $-2.61155 \cdot 10^{-321}$

γ_{pre+1} coordinates: (325035560329307037816130327850867538168412913482604,

-289335505363111791469507322043546979889984116584661,

-890851362783595668640981997673931192266000587545947,

914643021461358992245374834051317073759550691258939,

-117756104225544747009468052006238572644122086315234,

737435109272925059806011674659530201819429981853921,

735944735709947156876793814458510796749272077986006,

-1528968471201757795897651528987936631222743818108919,

269478636063359105211191232879770251663962517404156)

$\gamma_{pre+per+1}$: $-8.09621 \cdot 10^{-618}$

$\gamma_{pre+per+1}$ coordinates:

$(-18545568051549851592234699772995303736220962521031072517005271652595182443375867294695276307144356,$

30306562786489699390299276979150166206893038604690078317115622513696094026600093583171035220399160,

15266016452924973468384195199477773274588382221009539374124991493719681089950068436522688820854785,

-29998905929106732857287696401749188050929589599621513232938829314317769147622851062738770622418937,

8108826247296201898726496129983862083974237005260303369731404089494360316731434158915019532855859,

-49420004992965918845304950869289416841253295497004961482719143764728985238995313777997033492350358,

1705251253226177368602272729002368913005269829874265545751769095704882823128554844068530501703169,

44752455459355182099201454824744716430360193418166639771483804226958766390396054465888908310692000,

-8595771099432863320552070830406569290573387312600380419420997444222590278127526428539142793289630)

Norm of the first $pre + per + 1$ gammas: $-232, -83, 1, 232, 1, -232, 1, 197, -1, -232, 1, 29, 6728, -6131,$

$107047816, 1, -29, 1, 232, 1, -197, 1, -232, -1, 29, -6728, -6131, 107047816, -1, -29, 1, -232, -1,$

$197, 1, 232, -1, -29, -6728, -6131, 107047816, -1, 29, 1, -232, -1, 197, -1, -232, -1, 29, -6728,$

$-6131, 107047816, 1, 29, 1, 232, -1, -197, -1, -232, -1, 29, -6728, -6131, 107047816, 1, 29, 1, 232,$

$-1, -197, -1, 232, -1, -29, -6728, 6131, 107047816, 1, 29, 1, 232, -1, -197, -1, 232, 1, -29, 6728,$

$-6131, 107047816, 1, 29, 1, 232, 1, -197, -1, 232, -1, -29, -6728, -6131, 107047816, 1, -29, 1, 232,$

$-1, -197, 1, 232, -1, -29, -6728, 6131, 107047816, -1, 29, 1, -232$

Back

Polynomial: $x^9 - 3x^8 + 3x^7 + 4x^6 - 12x^5 + 9x^4 + x^3 - 9x^2 + 6x - 1$

Signature: 5

Starting basis: (1.0000000, 1.3649828, 1.8631781, 2.5432061, 3.4714326, 4.7384458, 6.4678971, 8.8285685, 12.050844)

Algorithm 1

Period length: 32

Pre-period length: 1

γ_{pre+1} : $-1.36786 \cdot 10^{-5}$

γ_{pre+1} coordinates: $(-88, 255, -100, -161, 330, -158, -64, 85, -33)$

$\gamma_{pre+per+1}$: $-9.29027 \cdot 10^{-93}$

$\gamma_{pre+per+1}$ coordinates: $(-8944165921609367198421, 31936518422910086718827, -13323541743403496886693, -17416465976051893011811, 40669921145096231408692, -21380900780206891617253, -7307501702031105241421, 10723182454968235187643, -4382072267143187868364)$

Norm of the first $pre + per + 1$ gammas: 37, 37, 37, -37, 37, -37, 37, 37, 37, -37, 37, -37, 37, -37, 37, 37, -37, 37, 37, 37, -37, 37, 37, 37, 37, -37, 37, 37, -37, 37, 37, -37, 37, 37

Algorithm 2

Period length: 4

Pre-period length: 2

γ_{pre+1} : $8.70753 \cdot 10^{-18}$

γ_{pre+1} coordinates: $(-275, 1425, -756, -407, 1650, -1101, -217, 459, -198)$

$\gamma_{pre+per+1}$: $1.55987 \cdot 10^{-40}$

$\gamma_{pre+per+1}$ coordinates: $(-1026497, 4593321, -2166819, -2272107, 5508362, -2959461, -1265808, 1438346, -418044)$

Norm of the first $pre + per + 1$ gammas: 1, -1, -1, 1, -1, -1, -1

Back

Polynomial: $x^9 - 2x^8 - 5x^7 + 12x^6 + 3x^5 - 19x^4 + 7x^3 + 7x^2 - 2x - 1$

Signature: 7

Starting basis: (1.0000000, 0.60023145, 0.36027779, 0.21625006, 0.12980009, 0.077910096, 0.046764090, 0.028069278, 0.016848063)

Algorithm 1

Period length: 3

Pre-period length: 7

γ_{pre+1} : $-8.53623 \cdot 10^{-12}$

γ_{pre+1} coordinates: $(447, -518, -3081, 5228, 761, -3902, 699, 680, -188)$

$\gamma_{pre+per+1}$: $-9.99204 \cdot 10^{-16}$

$\gamma_{pre+per+1}$ coordinates: $(-33984, 51485, 244968, -464787, -54775, 342732, -61168, -59417, 16058)$

Norm of the first $pre + per + 1$ gammas: -1, 1, -1, -1, 1, -1, -1, -1, -1, -1, -1, -1

Algorithm 2

Period length: 20

Pre-period length: 8

γ_{pre+1} : $1.16809 \cdot 10^{-47}$

γ_{pre+1} coordinates: $(88100460, -22336807, -544192746, 593948596, 188117002, -496863043, 110701410, 93236147, -34125186)$

$\gamma_{pre+per+1}$ coordinates: (14954514704669881750130653891, 28955244713523613868689396375,
 -101105844844974989170852980399, -90728495282078534281835256660, 244980333838409141410982600158,
 -82482488171341160842787654026, -56526990951418226060529241691, 38668671670859466588472381966,
 -6074798480250272250362800388)

[Back](#)

Starting basis: (1.0000000, -1.8916345, 3.5782810, -6.7687998, 12.804095, -24.220668, 45.816650, -86.668356, 163.94485)

[illegible]

Norm of the first $pre + per + 1$ gammas: 1, -151, -227, -1, 1, -1, 19, 37, 1, 1, -1, 1, -1, 1, -1, -37, 1, -37, -1, 1, -1, 1, 1, 1, -1, -151, -227, -1, 1, 1, -19, -37, -1, -1, -1, -1, -227, -1, -1, -1, 1, -1,

28156083438978822482157338550141417197925177777354356307145221520220308437856,
19382645736320784390491720080919100006430222104077535548934517678762329379001,
−9217238338739300490338108875678662305535894228722949025123713163031643930610)

Norm of the first $pre + per + 1$ gammas: 109, 1, 109, 1, 109, 11881, 109, −19603, 1, 109, 11881, −769,
−43, −4687, −67, 1, 109, 11881, 109, −19603, −859, −263, 109, 199, 1, 109, 199, 1, 109, 11881, 109,
−19603, −859, −263, 109, 199, 1, 109, 199, 1, 109, 11881, 109, −19603, −859, −263, 109, 199, 1, 109,
199, 1, 109, 11881, 109, −19603, −859, −263, 109, 199, 1, 109, 199, 1, 109, 11881, 109, −19603, −859,
−263, 109, 199, 1, 109, 199, 1, 109, 11881, 109, −19603, −859, −263, 109, 199, 1, 109, 199, 1, 109, 11881,
109, −19603, −859, −263, 109, 199, 1, 109, 199, 1, 109, 11881, 109, −19603, −859, −263, 109, 199, 1,
109, 199, 1, 109, 11881, 109, −19603, −859, −263, 109, 199, 1, 109, 199, 1, 109, 11881, 109, −19603,
−859, −263, 109, 199, 1, 109, 199, 1, 109, 11881, 109, −19603, −859, −263, 109, 199, 1, 109, 199, 1, 109,
11881, 109, −19603, −859, −263, 109, 199, 1, 109, 199, 1, 109, 11881, 109, −19603

Algorithm 2

Period length: 8

Pre-period length: 1

γ_{pre+1} : $-1.04287 \cdot 10^{-12}$

γ_{pre+1} coordinates: (−5, 19, −24, 41, −15, 7, −35, 38, −27, 7)

$\gamma_{pre+per+1}$: $-1.23350 \cdot 10^{-60}$

$\gamma_{pre+per+1}$ coordinates: (11242838647, −24246159328, −40691111452, 27545004683, 29167623463, 6157706076,
−35781276716, 54390697181, −43595747985, 10735769377)

Norm of the first $pre + per + 1$ gammas: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1

Back

Polynomial: $x^{10} - 6x^8 + 10x^6 - x^4 - 6x^2 + 1$

Signature: 8

Starting basis: (1.0000000, 1.5197768, 2.3097215, 3.5102611, 5.3348132, 8.1077254, 12.321933, 18.726587,
28.460232, 43.253201)

Algorithm 1

Period length: 20

Pre-period length: 24

γ_{pre+1} : $-7.57071 \cdot 10^{-55}$

γ_{pre+1} coordinates: (−321882064, −297790687, 2400195090, 2240240474, −3177225612, −2996797137,
1444477776, 1384497208, −213306504, −209023913)

$\gamma_{pre+per+1}$: $-2.58566 \cdot 10^{-92}$

$\gamma_{pre+per+1}$ coordinates: (−43665256306231642, 294989586958542188, 292518731348224282,
−183763014671885848, 102128656521487962, −455164642742284429, −496693556677274778,
553617849365239263, 173695549879299340, −149822097277666555)

Norm of the first $pre + per + 1$ gammas: −23, −1541, 1, −23, −1541, −1, 23, 1541, 741351144299677, 1,
1, −23, 109, 1, −1, −1, 23, −21031, −1, 1

Algorithm 2

Period length: 12

Pre-period length: 21

γ_{pre+1} : $-2.52341 \cdot 10^{-144}$

γ_{pre+1} coordinates: $(-174083012698280788, -106437289291869539, 1272001607136980144, 870431189670901775, -1706060737252341015, -1178513442048327051, 796580372494382056, 545851311027007768, -122657613278798453, -82016248005281408)$
 $\gamma_{pre+per+1}$: $-1.00657 \cdot 10^{-219}$
 $\gamma_{pre+per+1}$ coordinates: $(1653437612649939877212603563, 39066132196757311423848052, -12334565799729694220168176457, -296693558972332602535266498, 16370378350435873125642755266, 424141443304676150231575091, -7478297722760873154518140627, -214451002677567258498133283, 1112049063356182648132187699, 36070900592431138813933760)$
Norm of the first $pre + per + 1$ gammas: 1, 1, 1, 1, 1, -109, -1, -1, -1, -1, 1, 131, -1, -373, -1, -1, -1, 43, 1, -1, -1, 1, 1, -1, -1, 1, 1, -1, -1, 1, 1, -1, -1, 1
Back

Polynomial: $x^{10} - x^9 - 10x^8 + 10x^7 + 34x^6 - 34x^5 - 43x^4 + 43x^3 + 12x^2 - 12x + 1$
Signature: 10
Starting basis: $(1.0000000, -1.9909438, 3.9638574, -7.8918175, 15.712165, -31.282039, 62.280783, -123.99754, 246.87214, -491.50857)$

Algorithm 1

Period length: 10
Pre-period length: 1
 γ_{pre+1} : $8.20139 \cdot 10^{-5}$
 γ_{pre+1} coordinates: $(4, 4, 1, 0, 0, 0, 0, 0, 0, 0)$
 $\gamma_{pre+per+1}$: $-3.04317 \cdot 10^{-25}$
 $\gamma_{pre+per+1}$ coordinates: $(-3797, -28139, -64295, -99495, -138490, -112574, -49863, -21538, -10626, -2299)$
Norm of the first $pre + per + 1$ gammas: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1

Algorithm 2

Period length: 36
Pre-period length: 97
 γ_{pre+1} : $4.18300 \cdot 10^{-641}$
 γ_{pre+1} coordinates:
 $(-1254496457442432274229624045129001352797058227269332444410893501534692439693849622, 14265656331385569906325728609637858015098168843569654395783702043712052827644348085, -6257826879241405955013344822520647164076555568599859288889567374681753488889376539, -56305205124559406680614886513827062496289147171022879296411298562756868703717208012, 20913134871847198470299795631554149040010981024768928682153431388857653134358317790, 53022818937125141021220132371291528787662516905588769331671269654607972690231798171, -12160404300406233634889297091744957542064839947706661699669717352797372331898709438, -18819821500728535283685809982318250431548890074100898730740677483046229125705106182, 1864565497877921948846259841526815180052907214201804235153425458048306785339131444, 2230640183725767453401157488329095916663937820938495617324998984458226163568150791)$
 $\gamma_{pre+per+1}$: $2.09823 \cdot 10^{-870}$
 $\gamma_{pre+per+1}$ coordinates: $(-7942711793009509325254162413255550235874585143432138519 \\ \\ 15067658102094205767100871470362670603302839606565936648, 91039634586555734446593476123472915414989487741025707728 \\ \\ 15536269728657013077989986718619907544649202382949477559,$

[illegible]