TABLE TO ACCOMPANY: TOTALLY P-ADIC NUMBERS OF DEGREE 3

Table 1: Abelian Cubic Polynomials and Congruence Classes (mod m_i) for Splitting over $\mathbb{Q}_p$

$h(\alpha_i)$	f_{α_i}	α_i is totally p-adic iff
0.2698623053	$x^3 - 2x^2 - x + 1$	$p \equiv 1, 6 \pmod 7$
0.2698623053	$x^3 - x^2 - 2x + 1$	$p \equiv 1, 6 \pmod 7$
0.2698623053	$x^3 + x^2 - 2x - 1$	$p \equiv 1, 6 \pmod 7$
0.2698623053	$x^3 + 2x^2 - x - 1$	$p \equiv 1, 6 \pmod 7$
0.3525256045	$x^3 - 3x^2 + 1$	$p \equiv 1, 8 \pmod 9$
0.3525256045	$x^3 - 3x - 1$	$p \equiv 1, 8 \pmod 9$
0.3525256045	$x^3 - 3x + 1$	$p \equiv 1, 8 \pmod 9$
0.3525256045	$x^3 + 3x^2 - 1$	$p \equiv 1, 8 \pmod 9$
0.4090481645	$x^3 - 3x^2 + 3$	$p \equiv 1, 8 \pmod 9$
0.4090481645	$x^3 + 3x^2 - 3$	$p \equiv 1, 8 \pmod 9$
0.4090481645	$3x^3 - 3x - 1$	$p \equiv 1, 8 \pmod 9$
0.4090481645	$3x^3 - 3x + 1$	$p \equiv 1, 8 \pmod 9$
0.4316755623	$x^3 - 4x^2 + x + 1$	$p \equiv 1, 5, 8, 12 \pmod{13}$
0.4316755623	$x^3 - x^2 - 4x - 1$	$p \equiv 1, 5, 8, 12 \pmod{13}$
0.4316755623	$x^3 + x^2 - 4x + 1$	$p \equiv 1, 5, 8, 12 \pmod{13}$
0.4316755623	$x^3 + 4x^2 + x - 1$	$p \equiv 1, 5, 8, 12 \pmod{13}$
0.4661498406	$x^3 - 4x^2 + 3x + 1$	$p \equiv 1, 6 \pmod 7$
0.4661498406	$x^3 - 3x^2 - 4x - 1$	$p \equiv 1, 6 \pmod 7$
0.4661498406	$x^3 + 3x^2 - 4x + 1$	$p \equiv 1, 6 \pmod 7$
0.4661498406	$x^3 + 4x^2 + 3x - 1$	$p \equiv 1, 6 \pmod 7$
0.5009113655	$2x^3 - 4x^2 - 2x + 2$	$p \equiv 1, 6 \pmod 7$
0.5009113655	$2x^3 - 2x^2 - 4x + 2$	$p \equiv 1, 6 \pmod 7$
0.5009113655	$2x^3 + 2x^2 - 4x - 2$	$p \equiv 1, 6 \pmod 7$
0.5009113655	$2x^3 + 4x^2 - 2x - 2$	$p \equiv 1, 6 \pmod 7$
0.5018786268	$x^3 - 5x^2 + 2x + 1$	$p \equiv 1, 7, 8, 11, 12, 18 \pmod{19}$
0.5018786268	$x^3 - 2x^2 - 5x - 1$	$p \equiv 1, 7, 8, 11, 12, 18 \pmod{19}$

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$h(\alpha_i)$	f_{α_i}	α_i is totally p-adic iff
0.5018786268	$x^3 + 2x^2 - 5x + 1$	$p \equiv 1, 7, 8, 11, 12, 18 \pmod{19}$
0.5018786268	$x^3 + 5x^2 + 2x - 1$	$p \equiv 1, 7, 8, 11, 12, 18 \pmod{19}$
0.5364793041	$x^3 - 2x^2 - 3x + 5$	$p \equiv 1, 5, 8, 12 \pmod{13}$
0.5364793041	$x^3 + 2x^2 - 3x - 5$	$p \equiv 1, 5, 8, 12 \pmod{13}$
0.5364793041	$5x^3 - 3x^2 - 2x + 1$	$p \equiv 1, 5, 8, 12 \pmod{13}$
0.5364793041	$5x^3 + 3x^2 - 2x - 1$	$p \equiv 1, 5, 8, 12 \pmod{13}$
0.5397246107	$x^3 - 6x^2 + 5x - 1$	$p \equiv 1, 6 \pmod{7}$
0.5397246107	$x^3 - 5x^2 + 6x - 1$	$p \equiv 1, 6 \pmod{7}$
0.5397246107	$x^3 + 5x^2 + 6x + 1$	$p \equiv 1, 6 \pmod{7}$
0.5397246107	$x^3 + 6x^2 + 5x + 1$	$p \equiv 1, 6 \pmod{7}$
0.5420244156	$2x^3 - 5x^2 - x + 2$	$p \equiv 1, 2, 4, 8, 15, 16, 23, 27, 29, 30 \pmod{31}$
0.5420244156	$2x^3 - x^2 - 5x + 2$	$p \equiv 1, 2, 4, 8, 15, 16, 23, 27, 29, 30 \pmod{31}$
0.5420244156	$2x^3 + x^2 - 5x - 2$	$p \equiv 1, 2, 4, 8, 15, 16, 23, 27, 29, 30 \pmod{31}$
0.5420244156	$2x^3 + 5x^2 - x - 2$	$p \equiv 1, 2, 4, 8, 15, 16, 23, 27, 29, 30 \pmod{31}$
0.5628405126	$x^3 - 6x^2 + 3x + 1$	$p \equiv 1, 8 \pmod{9}$
0.5628405126	$x^3 - 3x^2 - 6x - 1$	$p \equiv 1, 8 \pmod{9}$
0.5628405126	$x^3 + 3x^2 - 6x + 1$	$p \equiv 1, 8 \pmod{9}$
0.5628405126	$x^3 + 6x^2 + 3x - 1$	$p \equiv 1, 8 \pmod{9}$
0.5835746647	$2x^3 - 6x^2 + 2$	$p \equiv 1, 8 \pmod{9}$
0.5835746647	$2x^3 - 6x - 2$	$p \equiv 1, 8 \pmod{9}$
0.5835746647	$2x^3 - 6x + 2$	$p \equiv 1, 8 \pmod{9}$
0.5835746647	$2x^3 + 6x^2 - 2$	$p \equiv 1, 8 \pmod{9}$
0.5988214758	$x^3 - 6x^2 - x + 5$	$p \equiv 1, 5, 8, 12 \pmod{13}$
0.5988214758	$x^3 + 6x^2 - x - 5$	$p \equiv 1, 5, 8, 12 \pmod{13}$
0.5988214758	$5x^3 - x^2 - 6x + 1$	$p \equiv 1, 5, 8, 12 \pmod{13}$
0.5988214758	$5x^3 + x^2 - 6x - 1$	$p \equiv 1, 5, 8, 12 \pmod{13}$
0.6098176693	$3x^3 - 5x^2 - 4x + 3$	$p \equiv 1, 3, 8, 9, 11, 23, 27, 28, 37, 41, 50, 52, 53 \pmod{61}$
0.6098176693	$3x^3 - 4x^2 - 5x + 3$	$p \equiv 1, 3, 8, 9, 11, 23, 27, 28, 37, 41, 50, 52, 53 \pmod{61}$
0.6098176693	$3x^3 + 4x^2 - 5x - 3$	$p \equiv 1, 3, 8, 9, 11, 23, 27, 28, 37, 41, 50, 52, 53 \pmod{61}$
0.6098176693	$3x^3 + 5x^2 - 4x - 3$	$p \equiv 1, 3, 8, 9, 11, 23, 27, 28, 37, 41, 50, 52, 53 \pmod{61}$

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Table 1 – continued from previous page

$h(\alpha_i)$	f_{α_i}	α_i is totally p-adic iff
0.6158739226	$x^3 - 7x^2 + 4x + 1$	$p \equiv 1, 6, 8, 10, 11, 14, 23, 26, 27, 29, 31, 36 \pmod{37}$
0.6158739226	$x^3 - 4x^2 - 7x - 1$	$p \equiv 1, 6, 8, 10, 11, 14, 23, 26, 27, 29, 31, 36 \pmod{37}$
0.6158739226	$x^3 + 4x^2 - 7x + 1$	$p \equiv 1, 6, 8, 10, 11, 14, 23, 26, 27, 29, 31, 36 \pmod{37}$
0.6158739226	$x^3 + 7x^2 + 4x - 1$	$p \equiv 1, 6, 8, 10, 11, 14, 23, 26, 27, 29, 31, 36 \pmod{37}$
0.6193630725	$x^3 - 6x^2 + 9x - 3$	$p \equiv 1, 8 \pmod{9}$
0.6193630725	$x^3 + 6x^2 + 9x + 3$	$p \equiv 1, 8 \pmod{9}$
0.6193630725	$3x^3 - 9x^2 + 6x - 1$	$p \equiv 1, 8 \pmod{9}$
0.6193630725	$3x^3 + 9x^2 + 6x + 1$	$p \equiv 1, 8 \pmod{9}$
0.6241036381	$2x^3 - 7x^2 + x + 2$	$p \equiv 1, 2, 4, 8, 11, 16, 21, 22, 27, 39, 41 \pmod{43}$
0.6241036381	$2x^3 - x^2 - 7x - 2$	$p \equiv 1, 2, 4, 8, 11, 16, 21, 22, 27, 39, 41 \pmod{43}$
0.6241036381	$2x^3 + x^2 - 7x + 2$	$p \equiv 1, 2, 4, 8, 11, 16, 21, 22, 27, 39, 41 \pmod{43}$
0.6241036381	$2x^3 + 7x^2 + x - 2$	$p \equiv 1, 2, 4, 8, 11, 16, 21, 22, 27, 39, 41 \pmod{43}$
0.6360664016	$3x^3 - 6x^2 - 3x + 3$	$p \equiv 1, 6 \pmod{7}$
0.6360664016	$3x^3 - 3x^2 - 6x + 3$	$p \equiv 1, 6 \pmod{7}$
0.6360664016	$3x^3 + 3x^2 - 6x - 3$	$p \equiv 1, 6 \pmod{7}$
0.6360664016	$3x^3 + 6x^2 - 3x - 3$	$p \equiv 1, 6 \pmod{7}$
0.6400972247	$2x^3 - 6x^2 + 6$	$p \equiv 1, 8 \pmod{9}$
0.6400972247	$2x^3 + 6x^2 - 6$	$p \equiv 1, 8 \pmod{9}$
0.6400972247	$6x^3 - 6x - 2$	$p \equiv 1, 8 \pmod{9}$
0.6400972247	$6x^3 - 6x + 2$	$p \equiv 1, 8 \pmod{9}$
0.6486367163	$x^3 - x^2 - 6x + 7$	$p \equiv 1, 7, 8, 11, 12, 18 \pmod{19}$
0.6486367163	$x^3 + x^2 - 6x - 7$	$p \equiv 1, 7, 8, 11, 12, 18 \pmod{19}$
0.6486367163	$7x^3 - 6x^2 - x + 1$	$p \equiv 1, 7, 8, 11, 12, 18 \pmod{19}$
0.6486367163	$7x^3 + 6x^2 - x - 1$	$p \equiv 1, 7, 8, 11, 12, 18 \pmod{19}$
0.6486367163	$x^3 - 7x - 7$	$p \equiv 1, 6 \pmod{7}$
0.6486367163	$x^3 - 7x + 7$	$p \equiv 1, 6 \pmod{7}$

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Table 1 – continued from previous page

$h(\alpha_i)$	f_{α_i}	α_i is totally p-adic iff
0.6486367163	$7\,x^3-7\,x^2+1$	$p\equiv 1,6 \pmod{7}$
0.6486367163	$7\,x^3+7\,x^2-1$	$p\equiv 1,6 \pmod{7}$
0.6622071408	$x^3-6\,x^2-9\,x-3$	$p\equiv 1,8 \pmod{9}$
0.6622071408	$x^3+6\,x^2-9\,x+3$	$p\equiv 1,8 \pmod{9}$
0.6622071408	$3\,x^3-9\,x^2+6\,x+1$	$p\equiv 1,8 \pmod{9}$
0.6622071408	$3\,x^3+9\,x^2+6\,x-1$	$p\equiv 1,8 \pmod{9}$
0.6624373759	$x^3-8\,x^2+5\,x+1$	$p\equiv 1,6 \pmod{7}$
0.6624373759	$x^3-5\,x^2-8\,x-1$	$p\equiv 1,6 \pmod{7}$
0.6624373759	$x^3+5\,x^2-8\,x+1$	$p\equiv 1,6 \pmod{7}$
0.6624373759	$x^3+8\,x^2+5\,x-1$	$p\equiv 1,6 \pmod{7}$
0.6627246225	$2\,x^3-8\,x^2+2\,x+2$	$p\equiv 1,5,8,12 \pmod{13}$
0.6627246225	$2\,x^3-2\,x^2-8\,x-2$	$p\equiv 1,5,8,12 \pmod{13}$
0.6627246225	$2\,x^3+2\,x^2-8\,x+2$	$p\equiv 1,5,8,12 \pmod{13}$
0.6627246225	$2\,x^3+8\,x^2+2\,x-2$	$p\equiv 1,5,8,12 \pmod{13}$
0.6633392513	$3\,x^3-7\,x^2-2\,x+3$	$p\equiv 1,3,5,15,22,40,42,43,45,53,59,64 \pmod{67}$
0.6633392513	$3\,x^3-2\,x^2-7\,x+3$	$p\equiv 1,3,5,15,22,40,42,43,45,53,59,64 \pmod{67}$
0.6633392513	$3\,x^3+2\,x^2-7\,x-3$	$p\equiv 1,3,5,15,22,40,42,43,45,53,59,64 \pmod{67}$
0.6633392513	$3\,x^3+7\,x^2-2\,x-3$	$p\equiv 1,3,5,15,22,40,42,43,45,53,59,64 \pmod{67}$
0.6663004651	$2\,x^3-7\,x^2+3\,x+4$	$p\equiv 1,2,4,8,15,16,23,27,29,30 \pmod{31}$
0.6663004651	$2\,x^3+7\,x^2+3\,x-4$	$p\equiv 1,2,4,8,15,16,23,27,29,30 \pmod{31}$
0.6663004651	$4\,x^3-3\,x^2-7\,x-2$	$p\equiv 1,2,4,8,15,16,23,27,29,30 \pmod{31}$
0.6663004651	$4\,x^3+3\,x^2-7\,x+2$	$p\equiv 1,2,4,8,15,16,23,27,29,30 \pmod{31}$
0.6696162679	$x^3-7\,x^2+7$	$p\equiv 1,6 \pmod{7}$
0.6696162679	$x^3+7\,x^2-7$	$p\equiv 1,6 \pmod{7}$
0.6696162679	$7\,x^3-7\,x-1$	$p\equiv 1,6 \pmod{7}$
0.6696162679	$7\,x^3-7\,x+1$	$p\equiv 1,6 \pmod{7}$
0.6795133581	$x^3-5\,x^2+4\,x+5$	$p\equiv 1,5,12 \pmod{13}$
0.6795133581	$x^3+5\,x^2+4\,x-5$	$p\equiv 1,5,12 \pmod{13}$
0.6795133581	$5\,x^3-4\,x^2-5\,x-1$	$p\equiv 1,5,12 \pmod{13}$
0.6795133581	$5\,x^3+4\,x^2-5\,x+1$	$p\equiv 1,5,12 \pmod{13}$

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Table 1 – continued from previous page

$h(\alpha_i)$	f_{α_i}	α_i is totally p-adic iff
0.6910644552	$3x^3 - 8x^2 - x + 3$	$p \equiv 1, 3, 7, 8, 10, 17, 21, 24, 27, 30, 43, 64, 65, 66 \pmod{73}$
0.6910644552	$3x^3 - x^2 - 8x + 3$	$p \equiv 1, 3, 7, 8, 10, 17, 21, 24, 27, 30, 43, 64, 65, 66 \pmod{73}$
0.6910644552	$3x^3 + x^2 - 8x - 3$	$p \equiv 1, 3, 7, 8, 10, 17, 21, 24, 27, 30, 43, 64, 65, 66 \pmod{73}$
0.6910644552	$3x^3 + 8x^2 - x - 3$	$p \equiv 1, 3, 7, 8, 10, 17, 21, 24, 27, 30, 43, 64, 65, 66 \pmod{73}$
0.6931471806	$x^3 - 6x^2 + 8$	$p \equiv 1, 8 \pmod{9}$
0.6931471806	$x^3 + 6x^2 - 8$	$p \equiv 1, 8 \pmod{9}$
0.6931471806	$x^3 - 4x^2 - 4x + 8$	$p \equiv 1, 6 \pmod{7}$
0.6931471806	$x^3 + 4x^2 - 4x - 8$	$p \equiv 1, 6 \pmod{7}$
0.6931471806	$x^3 - 5x^2 - 2x + 8$	$p \equiv 1, 2, 4, 8, 15, 16, 23, 27, 29, 30 \pmod{31}$
0.6931471806	$x^3 + 5x^2 - 2x - 8$	$p \equiv 1, 2, 4, 8, 15, 16, 23, 27, 29, 30 \pmod{31}$
0.6931471806	$8x^3 + 2x^2 - 5x - 1$	$p \equiv 1, 2, 4, 8, 15, 16, 23, 27, 29, 30 \pmod{31}$
0.6931471806	$8x^3 - 2x^2 - 5x + 1$	$p \equiv 1, 2, 4, 8, 15, 16, 23, 27, 29, 30 \pmod{31}$
0.6931471806	$2x^3 - 5x^2 - 3x + 8$	$p \equiv 1, 2, 4, 8, 11, 16, 21, 22, 27, 39, 41 \pmod{43}$
0.6931471806	$2x^3 + 5x^2 - 3x - 8$	$p \equiv 1, 2, 4, 8, 11, 16, 21, 22, 27, 39, 41 \pmod{43}$
0.6931471806	$8x^3 - 3x^2 - 5x + 2$	$p \equiv 1, 2, 4, 8, 11, 16, 21, 22, 27, 39, 41 \pmod{43}$
0.6931471806	$8x^3 + 3x^2 - 5x - 2$	$p \equiv 1, 2, 4, 8, 11, 16, 21, 22, 27, 39, 41 \pmod{43}$
0.6931471806	$8x^3 - 4x^2 - 4x + 1$	$p \equiv 1, 6 \pmod{7}$
0.6931471806	$8x^3 + 4x^2 - 4x - 1$	$p \equiv 1, 6 \pmod{7}$
0.6931471806	$8x^3 - 6x - 1$	$p \equiv 1, 8 \pmod{9}$
0.6931471806	$8x^3 - 6x + 1$	$p \equiv 1, 8 \pmod{9}$
0.6943241113	$x^3 - 7x^2 + 12x - 5$	$p \equiv 1, 5, 12 \pmod{13}$
0.6943241113	$x^3 + 7x^2 + 12x + 5$	$p \equiv 1, 5, 12 \pmod{13}$
0.6943241113	$5x^3 - 12x^2 + 7x - 1$	$p \equiv 1, 5, 12 \pmod{13}$
0.6943241113	$5x^3 + 12x^2 + 7x + 1$	$p \equiv 1, 5, 12 \pmod{13}$
0.6971989008	$2x^3 - 8x^2 + 6x + 2$	$p \equiv 1, 6 \pmod{7}$
0.6971989008	$2x^3 - 6x^2 - 8x - 2$	$p \equiv 1, 6 \pmod{7}$

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Table 1 – continued from previous page

$h(\alpha_i)$	f_{α_i}	α_i is totally p-adic iff
0.6971989008	$2x^3+6x^2-8x+2$	$p \equiv 1, 6 \pmod{7}$
0.6971989008	$2x^3+8x^2+6x-2$	$p \equiv 1, 6 \pmod{7}$
0.6990306738	$2x^3-9x^2+3x+2$	$p \equiv 1, 2, 4, 8, 16, 31, 32, 47, 55, 59, 61, 62 \pmod{63}$
0.6990306738	$2x^3-3x^2-9x-2$	$p \equiv 1, 2, 4, 8, 16, 31, 32, 47, 55, 59, 61, 62 \pmod{63}$
0.6990306738	$2x^3+3x^2-9x+2$	$p \equiv 1, 2, 4, 8, 16, 31, 32, 47, 55, 59, 61, 62 \pmod{63}$
0.6990306738	$2x^3+9x^2+3x-2$	$p \equiv 1, 2, 4, 8, 16, 31, 32, 47, 55, 59, 61, 62 \pmod{63}$
0.7037615930	x^3-9x^2+6x+1	$p \equiv 1, 5, 8, 11, 23, 25, 38, 40, 52, 55, 58, 62 \pmod{63}$
0.7037615930	x^3-6x^2-9x-1	$p \equiv 1, 5, 8, 11, 23, 25, 38, 40, 52, 55, 58, 62 \pmod{63}$
0.7037615930	x^3+6x^2-9x+1	$p \equiv 1, 5, 8, 11, 23, 25, 38, 40, 52, 55, 58, 62 \pmod{63}$
0.7037615930	x^3+9x^2+6x-1	$p \equiv 1, 5, 8, 11, 23, 25, 38, 40, 52, 55, 58, 62 \pmod{63}$