$$a^2 + b^2 = \{1, 1\}^2 - 2ab$$

$$\frac{a^3 + b^3}{a + b} = \{1, 1\}^2 - 3ab$$

$$\frac{a^5 - b^5}{a - b} = \{1, 3, 1\}^2 - 5ab\,\{1, 1\}^2$$

$$\frac{a^6 + b^6}{a^2 + b^2} = \{1, 3, 1\}^2 - 6ab\,\{1, 1\}^2$$

$$\frac{a^7 + b^7}{a + b} = \{1, 3, 3, 1\}^2 - 7ab\,\{1, 1, 1\}^2$$

$$\frac{a^{10} + b^{10}}{a^2 + b^2} = \{1, 5, 7, 5, 1\}^2 - 10ab\,\{1, 2, 2, 1\}^2$$

$$\frac{a^{11} + b^{11}}{a + b} = \{1, 5, \text{-}1, \text{-}1, 5, 1\}^2 - 11ab\,\{1, 1, \text{-}1, 1, 1\}^2$$

$$\frac{a^{13} - b^{13}}{a - b} = \{1, 7, 15, 19, 15, 7, 1\}^2 - 13ab\,\{1, 3, 5, 5, 3, 1\}^2$$

$$\frac{a^{14} + b^{14}}{a^2 + b^2} = \{1, 7, 3, \text{-}7, 3, 7, 1\}^2 - 14ab\,\{1, 2, \text{-}1, \text{-}1, 2, 1\}^2$$

$$\frac{a^{15} + b^{15}}{(a^5 + b^5)(a^3 + b^3)(a + b)^{-1}} = \{1, 8, 13, 8, 1\}^2 - 15ab\,\{1, 3, 3, 1\}^2$$

$$\frac{a^{17} - b^{17}}{a - b} = \{1, 9, 11, \text{-}5, \text{-}15, \text{-}5, 11, 9, 1\}^2 - 17ab\,\{1, 3, 1, \text{-}3, \text{-}3, 1, 3, 1\}^2$$

$$\frac{a^{19} + b^{19}}{a + b} = \{1, 9, 17, 27, 31, 31, 27, 17, 9, 1\}^2 - 19ab\,\{1, 3, 5, 7, 7, 7, 5, 3, 1\}^2$$

$$\frac{a^{21} - b^{21}}{(a^7 - b^7)(a^3 - b^3)(a - b)^{-1}} = \{1, 10, 13, 7, 13, 10, 1\}^2 - 21ab\,\{1, 3, 2, 2, 3, 1\}^2$$

$$\frac{a^{22} + b^{22}}{a^2 + b^2} = \{1, 11, 27, 33, 21, 11, 21, 33, 27, 11, 1\}^2 - 22ab\,\{1, 4, 7, 6, 3, 3, 6, 7, 4, 1\}^2$$

$$\frac{a^{23} + b^{23}}{a + b} = \{1, 11, 9, \text{-}19, \text{-}15, 25, 25, \text{-}15, \text{-}19, 9, 11, 1\}^2 - 23ab\,\{1, 3, \text{-}1, \text{-}5, 1, 7, 1, \text{-}5, \text{-}1, 3, 1\}^2$$

$$\frac{a^{26} + b^{26}}{a^2 + b^2} = \{1, 13, 19, \text{-}13, \text{-}11, 13, 7, 13, \text{-}11, \text{-}13, 19, 13, 1\}^2 - 26ab\,\{1, 4, 1, \text{-}4, 1, 2, 2, 1, \text{-}4, 1, 4, 1\}^2$$

$$\frac{a^{29} - b^{29}}{a - b} = \{1, 15, 33, 13, 15, 57, 45, 19, 45, 57, 15, 13, 33, 15, 1\}^2 - 29ab\,\{1, 5, 5, 1, 7, 11, 5, 5, 11, 7, 1, 5, 5, 1\}^2$$

$$\frac{a^{30} + b^{30}}{(a^{10} + b^{10})(a^6 + b^6)(a^2 + b^2)^{-1}} = \{1, 15, 38, 45, 43, 45, 38, 15, 1\}^2 - 30ab\,\{1, 5, 8, 8, 8, 8, 5, 1\}^2$$

$$\frac{a^{31}+b^{31}}{a+b} = \{1, 15, 43, 83, 125, 151, 169, 173, 173, 169, 151, 125, 83, 43, 15, 1\}^2 - 31ab\,\{1, 5, 11, 19, 25, 29, 31, 31, 31, 29, 25, 19, 11, 5, 1\}^2$$

$$\frac{a^{33}-b^{33}}{(a^{11}-b^{11})(a^3-b^3)(a-b)^{-1}} = \{1, 16, 37, 19, \text{-}32, \text{-}59, \text{-}32, 19, 37, 16, 1\}^2 - 33ab\,\{1, 5, 6, \text{-}1, \text{-}9, \text{-}9, \text{-}1, 6, 5, 1\}^2$$

$$\frac{a^{34}+b^{34}}{a^2+b^2} = \{1, 17, 59, 119, 181, 221, 243, 255, 257, 255, 243, 221, 181, 119, 59, 17, 1\}^2 - 34ab\,\{1, 6, 15, 26, 35, 40, 43, 44, 44, 43, 40, 35, 26, 15, 6, 1\}^2$$

$$\frac{a^{35}+b^{35}}{(a^7+b^7)(a^5+b^5)(a+b)^{-1}} = \{1, 18, 48, 11, \text{-}55, \text{-}11, 47, \text{-}11, \text{-}55, 11, 48, 18, 1\}^2 - 35ab\,\{1, 6, 7, \text{-}5, \text{-}8, 5, 5, \text{-}8, \text{-}5, 7, 6, 1\}^2$$

$$\frac{a^{37}-b^{37}}{a-b} = \{1, 19, 79, 183, 285, 349, 397, 477, 579, 627, 579, 477, 397, 349, 285, 183, 79, 19, 1\}^2 - 37ab\,\{1, 7, 21, 39, 53, 61, 71, 87, 101, 101, 87, 71, 61, 53, 39, 21, 7, 1\}^2$$

$$\frac{a^{38}+b^{38}}{a^2+b^2} = \{1, 19, 47, \text{-}19, \text{-}135, \text{-}57, 179, 209, \text{-}83, \text{-}285, \text{-}83, 209, 179, \text{-}57, \text{-}135, \text{-}19, 47, 19, 1\}^2 - 38ab\,\{1, 6, 5, \text{-}14, \text{-}21, 10, 39, 14, \text{-}37, \text{-}37, 14, 39, 10, \text{-}21, \text{-}14, 5, 6, 1\}^2$$

$$\frac{a^{39}+b^{39}}{(a^{13}+b^{13})(a^3+b^3)(a+b)^{-1}} = \{1, 20, 73, 119, 142, 173, 193, 173, 142, 119, 73, 20, 1\}^2 - 39ab\,\{1, 7, 16, 21, 25, 30, 30, 25, 21, 16, 7, 1\}^2$$

$$\frac{a^{41}-b^{41}}{a-b} = \{1, 21, 67, 49, 7, 35, 15, 11, \text{-}23, \text{-}65, \text{-}31, \text{-}65, \text{-}23, 11, 15, 35, 7, 49, 67, 21, 1\}^2 - 41ab\,\{1, 7, 11, 3, 3, 5, 1, 1, \text{-}9, \text{-}7, \text{-}7, \text{-}9, 1, 1, 5, 3, 3, 11, 7, 1\}^2$$

$$\frac{a^{42}+b^{42}}{(a^{14}+b^{14})(a^6+b^6)(a^2+b^2)^{-1}} = \{1, 21, 74, 105, 55, \text{-}42, \text{-}91, \text{-}42, 55, 105, 74, 21, 11\}^2 - 42ab\,\{1, 7, 15, 14, 1, \text{-}12, \text{-}12, 1, 14, 15, 7, 1\}^2$$

$$\frac{a^{43}+b^{43}}{a+b} = \{1, 21, 81, 169, 223, 225, 213, 223, 229, 197, 159, 159, 197, 229, 223, 213, 225, 223, 169, 81, 21, 1\}^2 - 43ab\,\{1, 7, 19, 31, 35, 33, 33, 35, 33, 27, 23, 27, 33, 35, 33, 33, 35, 31, 19, 7, 1\}^2$$

$$\frac{a^{46}+b^{46}}{a^2+b^2} = \{1,23,103,253,469,759,1131,1541,1917,2231,2463,2553,2463,2231,1917,1541,1131,759,469,253,103,23,1\}^2 - 46ab\,\{1,8,25,52,89,138,197,256,307,348,373,373,348,307,256,197,138,89,52,25,8,1\}^2$$

$$\frac{a^{47}+b^{47}}{a+b} = \{1, 23, 65, \text{-}15, \text{-}169, \text{-}97, 179, 287, \text{-}37, \text{-}375, \text{-}149, 311, 311, \text{-}149, \text{-}375, \text{-}37, 287, 179, \text{-}97, \text{-}169, \text{-}15, 65, 23, 1\}^2 - 47ab\,\{1, 7, 7, \text{-}15, \text{-}25, 5, 41, 25, \text{-}37, \text{-}49, 15, 57, 15, \text{-}49, \text{-}37, 25, 41, 5, \text{-}25, \text{-}15, 7, 7, 1\}^2$$