6.315

$$335084^4 - 296668^4 = 4^4 \cdot \left(83771^4 - 74167^4\right) =$$

$$= 265076^4 - 93436^4 = 28^4 \cdot \left(9467^4 - 3337^4\right) =$$

$$= 264047^4 - 1169^4 = 7^4 \cdot \left(37721^4 - 167^4\right)$$

$$83771^4 + 23359^4 = 74167^4 + 66269^4 \tag{4}$$

$$335084^4 + 1169^4 = 296668^4 + 264047^4 \tag{1}$$

$$37868^4 + 167^4 = 37721^4 + 13348^4 \tag{7}$$

$$x_1 = 315876 = 2^2 \cdot 3 \cdot 11 \cdot 2393$$

$$y_1 = 19208 = 2^3 \cdot 7^4$$

$$x_1^2 + y_1^2 = 100146594640 = 2^4 \cdot 5 \cdot 37 \cdot 97 \cdot 569 \cdot 613$$

$$x_2 = 179256 = 2^3 \cdot 3 \cdot 7 \cdot 11 \cdot 97$$

$$y_2 = 85820 = 2^2 \cdot 5 \cdot 7 \cdot 613$$

$$x_2^2 + y_2^2 = 39497785936 = 2^4 \cdot 7^2 \cdot 37 \cdot 569 \cdot 2393$$

$$x_3 = 131439 = 3 \cdot 7 \cdot 11 \cdot 569$$

$$y_3 = 132608 = 2^9 \cdot 7 \cdot 37$$

$$x_3^2 + y_3^2 = 34861092385 = 5 \cdot 7^2 \cdot 97 \cdot 613 \cdot 2393$$

$$\Pi = 2^9 \cdot 3 \cdot 5 \cdot 7^4 \cdot 11 \cdot 37 \cdot 97 \cdot 569 \cdot 613 \cdot 2393$$

$$r_0 = 33 = 3 \cdot 11$$

$$r_1 = 4 = 2^2$$

$$r_2 = 56 = 2^3 \cdot 7$$

$$r_3 = 7 = 7$$

$$z_{23} = 32 - 37i \qquad Abs^2 = 2393 = 2393$$

$$z_{31} = 9 + 4i \qquad Abs^2 = 97 = 97$$

$$z_{12} = -13 + 20i \qquad Abs^2 = 569 = 569$$

$$z_{32} = 7 \qquad Abs^2 = 49 = 7^2$$

$$z_{13} = 19 + 52i \qquad Abs^2 = 3065 = 5 \cdot 613$$

$$z_{21} = 24 + 4i \qquad Abs^2 = 592 = 2^4 \cdot 37$$

6.347

$$421296^4 - 273588^4 = 12^4 \cdot \left(35108^4 - 22799^4\right) =$$

$$= 415137^4 - 248289^4 = 3^4 \cdot \left(138379^4 - 82763^4\right) =$$

$$= 401168^4 - 17228^4 = 4^4 \cdot \left(100292^4 - 4307^4\right)$$

$$140432^4 + 82763^4 = 138379^4 + 91196^4 \tag{3}$$

$$105324^4 + 4307^4 = 100292^4 + 68397^4 \tag{4}$$

$$415137^4 + 17228^4 = 401168^4 + 248289^4 \tag{1}$$

$$x_1 = 347442 = 2 \cdot 3 \cdot 79 \cdot 733$$

$$y_1 = 73854 = 2 \cdot 3^2 \cdot 11 \cdot 373$$

$$x_1^2 + y_1^2 = 126170356680 = 2^3 \cdot 3^2 \cdot 5 \cdot 37 \cdot 257 \cdot 36857$$

$$x_2 = 331713 = 3^2 \cdot 36857$$

$$y_2 = 83424 = 2^5 \cdot 3 \cdot 11 \cdot 79$$

$$x_2^2 + y_2^2 = 116993078145 = 3^2 \cdot 5 \cdot 37 \cdot 257 \cdot 373 \cdot 733$$

$$x_3 = 209198 = 2 \cdot 11 \cdot 37 \cdot 257$$

$$y_3 = 191970 = 2 \cdot 3^5 \cdot 5 \cdot 79$$

$$x_3^2 + y_3^2 = 80616284104 = 2^3 \cdot 373 \cdot 733 \cdot 36857$$

$$\Pi = 2^5 \cdot 3^5 \cdot 5 \cdot 11 \cdot 37 \cdot 79 \cdot 257 \cdot 373 \cdot 733 \cdot 36857$$

$$r_0 = 1$$

$$r_1 = 474 = 2 \cdot 3 \cdot 79$$

$$r_2 = 9 = 3^2$$

$$r_3 = 22 = 2 \cdot 11$$

$$z_{23} = 27 + 2i \qquad Abs^2 = 733 = 733$$

$$z_{31} = 181 + 64i \qquad Abs^2 = 36857 = 36857$$

$$z_{12} = 22 + 95i \qquad Abs^2 = 9509 = 37 \cdot 257$$

$$z_{32} = 18 + 7i \qquad Abs^2 = 373 = 373$$

$$z_{13} = 2 + 2i \qquad Abs^2 = 8 = 2^3$$

$$z_{21} = 6 + 3i \qquad Abs^2 = 45 = 3^2 \cdot 5$$

6.834

$$854688^4 - 813396^4 = 12^4 \cdot \left(71224^4 - 67783^4\right) =$$

$$= 747633^4 - 682161^4 = 3^4 \cdot \left(249211^4 - 227387^4\right) =$$

$$= 614656^4 - 465236^4 = 4^4 \cdot \left(153664^4 - 116309^4\right)$$

$$284896^4 + 227387^4 = 271132^4 + 249211^4 \tag{3}$$

$$213672^4 + 116309^4 = 203349^4 + 153664^4 \tag{4}$$

$$747633^4 + 465236^4 = 682161^4 + 614656^4 \tag{1}$$

$$x_1 = 834042 = 2 \cdot 3 \cdot 11 \cdot 12637$$

$$y_1 = 20646 = 2 \cdot 3^2 \cdot 31 \cdot 37$$

$$x_1^2 + y_1^2 = 696052315080 = 2^3 \cdot 3^2 \cdot 5 \cdot 101 \cdot 241 \cdot 79433$$

$$x_2 = 714897 = 3^2 \cdot 79433$$

$$y_2 = 32736 = 2^5 \cdot 3 \cdot 11 \cdot 31$$

$$x_2^2 + y_2^2 = 512149366305 = 3^2 \cdot 5 \cdot 37 \cdot 101 \cdot 241 \cdot 12637$$

$$x_3 = 74710 = 2 \cdot 5 \cdot 31 \cdot 241$$

$$y_3 = 539946 = 2 \cdot 3^5 \cdot 11 \cdot 101$$

$$x_3^2 + y_3^2 = 297123267016 = 2^3 \cdot 37 \cdot 12637 \cdot 79433$$

$$\Pi = 2^5 \cdot 3^5 \cdot 5 \cdot 11 \cdot 31 \cdot 37 \cdot 101 \cdot 241 \cdot 12637 \cdot 79433$$

$$r_0 = 1$$

$$r_1 = 66 = 2 \cdot 3 \cdot 11$$

$$r_2 = 9 = 3^2$$

$$r_3 = 62 = 2 \cdot 31$$

$$z_{23} = 91 - 66i \qquad Abs^2 = 12637 = 12637$$

$$z_{31} = 52 + 277i \qquad Abs^2 = 79433 = 79433$$

$$z_{12} = 23 + 26i \qquad Abs^2 = 1205 = 5 \cdot 241$$

$$z_{32} = 1 + 6i \qquad Abs^2 = 37 = 37$$

$$z_{13} = 2 + 2i \qquad Abs^2 = 8 = 2^3$$

$$z_{21} = 30 + 3i \qquad Abs^2 = 909 = 3^2 \cdot 101$$

7.298

$$3138156^4 - 2840232^4 = 12^4 \cdot \left(261513^4 - 236686^4\right) =$$

$$= 2377876^4 - 500296^4 = 4^4 \cdot \left(594469^4 - 125074^4\right) =$$

$$= 2376783^4 - 249999^4 = 3^4 \cdot \left(792261^4 - 83333^4\right)$$

$$784539^4 + 125074^4 = 710058^4 + 594469^4 \tag{4}$$

$$1046052^4 + 83333^4 = 946744^4 + 792261^4 \tag{3}$$

$$2377876^4 + 249999^4 = 2376783^4 + 500296^4 \tag{1}$$

$$x_1 = 2989194 = 2 \cdot 3 \cdot 13 \cdot 19 \cdot 2017$$

$$y_1 = 148962 = 2 \cdot 3 \cdot 11 \cdot 37 \cdot 61$$

$$x_1^2 + y_1^2 = 8957470447080 = 2^3 \cdot 3^2 \cdot 5 \cdot 53 \cdot 7177 \cdot 65413$$

$$x_2 = 1439086 = 2 \cdot 11 \cdot 65413$$

$$y_2 = 938790 = 2 \cdot 3^4 \cdot 5 \cdot 19 \cdot 61$$

$$x_2^2 + y_2^2 = 2952295179496 = 2^3 \cdot 13 \cdot 37 \cdot 53 \cdot 2017 \cdot 7177$$

$$x_3 = 1313391 = 3 \cdot 61 \cdot 7177$$

$$y_3 = 1063392 = 2^5 \cdot 3 \cdot 11 \cdot 19 \cdot 53$$

$$x_3^2 + y_3^2 = 2855798464545 = 3^2 \cdot 5 \cdot 13 \cdot 37 \cdot 2017 \cdot 65413$$

$$\Pi = 2^5 \cdot 3^4 \cdot 5 \cdot 11 \cdot 13 \cdot 19 \cdot 37 \cdot 53 \cdot 61 \cdot 2017 \cdot 7177 \cdot 65413$$

$$r_0 = 1$$

$$r_1 = 114 = 2 \cdot 3 \cdot 19$$

$$r_2 = 22 = 2 \cdot 11$$

$$r_3 = 183 = 3 \cdot 61$$

$$z_{23} = -115 - 114i \qquad Abs^2 = 26221 = 13 \cdot 2017$$

$$z_{31} = -127 - 222i \qquad Abs^2 = 65413 = 65413$$

$$z_{12} = -84 + 11i \qquad Abs^2 = 7177 = 7177$$

$$z_{32} = 1 + 6i \qquad Abs^2 = 37 = 37$$

$$z_{13} = 6 + 3i \qquad Abs^2 = 45 = 3^2 \cdot 5$$

$$z_{21} = 10 + 18i \qquad Abs^2 = 424 = 2^3 \cdot 53$$

8.258

$$27220940^4 - 24543080^4 = 20^4 \cdot \left(1361047^4 - 1227154^4\right) =$$

$$= 20830065^4 - 6730545^4 = 15^4 \cdot \left(1388671^4 - 448703^4\right) =$$

$$= 20773068^4 - 39432^4 = 12^4 \cdot \left(1731089^4 - 3286^4\right)$$

$$5444188^4 + 1346109^4 = 4908616^4 + 4166013^4 \tag{5}$$

$$6805235^4 + 9858^4 = 6135770^4 + 5193267^4 \tag{4}$$

$$6943355^4 + 13144^4 = 6924356^4 + 2243515^4 \tag{3}$$

$$x_1 = 25882010 = 2 \cdot 5 \cdot 7 \cdot 11 \cdot 33613$$

$$y_1 = 1338930 = 2 \cdot 3^5 \cdot 5 \cdot 19 \cdot 29$$

$$x_1^2 + y_1^2 = 671671175185000 = 2^3 \cdot 5^4 \cdot 37 \cdot 41 \cdot 97 \cdot 773 \cdot 1181$$

$$x_2 = 13780305 = 3^2 \cdot 5 \cdot 7 \cdot 11 \cdot 41 \cdot 97$$

$$y_2 = 7049760 = 2^5 \cdot 3 \cdot 5 \cdot 19 \cdot 773$$

$$x_2^2 + y_2^2 = 239595921950625 = 3^2 \cdot 5^4 \cdot 29 \cdot 37 \cdot 1181 \cdot 33613$$

$$x_3 = 10366818 = 2 \cdot 3 \cdot 7 \cdot 11 \cdot 19 \cdot 1181$$

$$y_3 = 10406250 = 2 \cdot 3^2 \cdot 5^6 \cdot 37$$

$$x_3^2 + y_3^2 = 215760954507624 = 2^3 \cdot 3^2 \cdot 29 \cdot 41 \cdot 97 \cdot 773 \cdot 33613$$

$$\Pi = 2^5 \cdot 3^5 \cdot 5^6 \cdot 7 \cdot 11 \cdot 19 \cdot 29 \cdot 37 \cdot 41 \cdot 97 \cdot 773 \cdot 1181 \cdot 33613$$

$$r_0 = 77 = 7 \cdot 11$$

$$r_1 = 10 = 2 \cdot 5$$

$$r_2 = 45 = 3^2 \cdot 5$$

$$r_3 = 114 = 2 \cdot 3 \cdot 19$$

$$z_{23} = -158 - 93i \qquad Abs^2 = 33613 = 33613$$

$$z_{31} = -16 - 61i \qquad Abs^2 = 3977 = 41 \cdot 97$$

$$z_{12} = -34 + 5i \qquad Abs^2 = 1181 = 1181$$

$$z_{32} = 6 + 15i \qquad Abs^2 = 261 = 3^2 \cdot 29$$

$$z_{13} = 78 + 10i \qquad Abs^2 = 6184 = 2^3 \cdot 773$$

$$z_{21} = 135 + 70i \qquad Abs^2 = 23125 = 5^4 \cdot 37$$

8.413

$$43134160^4 - 39597700^4 = 20^4 \cdot \left(2156708^4 - 1979885^4\right) =$$

$$= 37607745^4 - 31601025^4 = 15^4 \cdot \left(2507183^4 - 2106735^4\right) =$$

$$= 32721072^4 - 19453572^4 = 12^4 \cdot \left(2726756^4 - 1621131^4\right)$$

$$8626832^4 + 6320205^4 = 7919540^4 + 7521549^4 \tag{5}$$

$$10783540^4 + 4863393^4 = 9899425^4 + 8180268^4 \tag{4}$$

$$12535915^4 + 6484524^4 = 10907024^4 + 10533675^4 \tag{3}$$

$$x_1 = 41365930 = 2 \cdot 5 \cdot 17 \cdot 61 \cdot 3989$$

$$y_1 = 1768230 = 2 \cdot 3^4 \cdot 5 \cdot 37 \cdot 59$$

$$x_1^2 + y_1^2 = 1714266802097800 = 2^3 \cdot 5^2 \cdot 29 \cdot 641 \cdot 6257 \cdot 73693$$

$$x_2 = 34604385 = 3 \cdot 5 \cdot 59 \cdot 61 \cdot 641$$

$$y_2 = 3003360 = 2^5 \cdot 3 \cdot 5 \cdot 6257$$

$$x_2^2 + y_2^2 = 1206483632517825 = 3^2 \cdot 5^2 \cdot 17 \cdot 29 \cdot 37 \cdot 3989 \cdot 73693$$

$$x_3 = 6633750 = 2 \cdot 3 \cdot 5^4 \cdot 29 \cdot 61$$

$$y_3 = 26087322 = 2 \cdot 3 \cdot 59 \cdot 73693$$

$$x_3^2 + y_3^2 = 724555008194184 = 2^3 \cdot 3^2 \cdot 17 \cdot 37 \cdot 641 \cdot 3989 \cdot 6257$$

$$\Pi = 2^5 \cdot 3^4 \cdot 5^4 \cdot 17 \cdot 29 \cdot 37 \cdot 59 \cdot 61 \cdot 641 \cdot 3989 \cdot 6257 \cdot 73693$$

$$r_0 = 305 = 5 \cdot 61$$

$$r_1 = 2 = 2$$

$$r_2 = 177 = 3 \cdot 59$$

$$r_3 = 30 = 2 \cdot 3 \cdot 5$$

$$z_{23} = 257 - 42i \qquad Abs^2 = 67813 = 17 \cdot 3989$$

$$z_{31} = 25 - 4i \qquad Abs^2 = 641 = 641$$

$$z_{12} = -10 + 25i \qquad Abs^2 = 725 = 5^2 \cdot 29$$

$$z_{32} = 18 + 3i \qquad Abs^2 = 333 = 3^2 \cdot 37$$

$$z_{13} = 166 + 150i \qquad Abs^2 = 50056 = 2^3 \cdot 6257$$

$$z_{21} = 242 + 123i \qquad Abs^2 = 73693 = 73693$$

8.447

$$49888344^4 - 39566652^4 = 12^4 \cdot \left(4157362^4 - 3297221^4\right) =$$

$$= 44400113^4 - 19439153^4 = 1^4 \cdot \left(44400113^4 - 19439153^4\right) =$$

$$= 43986552^4 - 1772484^4 = 12^4 \cdot \left(3665546^4 - 147707^4\right)$$

$$49888344^4 + 19439153^4 = 44400113^4 + 39566652^4 \tag{1}$$

$$4157362^4 + 147707^4 = 3665546^4 + 3297221^4 \tag{12}$$

$$44400113^4 + 1772484^4 = 43986552^4 + 19439153^4 \tag{1}$$

$$x_1 = 44727498 = 2 \cdot 3^3 \cdot 107 \cdot 7741$$

$$y_1 = 5160846 = 2 \cdot 3 \cdot 281 \cdot 3061$$

$$x_1^2 + y_1^2 = 2027183408775720 = 2^3 \cdot 3^2 \cdot 5 \cdot 13 \cdot 17 \cdot 29 \cdot 3917 \cdot 224309$$

$$x_2 = 31919633 = 29 \cdot 281 \cdot 3917$$

$$y_2 = 12480480 = 2^5 \cdot 3^6 \cdot 5 \cdot 107$$

$$x_2^2 + y_2^2 = 1174625351885089 = 13 \cdot 17 \cdot 3061 \cdot 7741 \cdot 224309$$

$$x_3 = 22879518 = 2 \cdot 3 \cdot 17 \cdot 224309$$

$$y_3 = 21107034 = 2 \cdot 3^3 \cdot 13 \cdot 107 \cdot 281$$

$$x_3^2 + y_3^2 = 968979228189480 = 2^3 \cdot 3^2 \cdot 5 \cdot 29 \cdot 3061 \cdot 3917 \cdot 7741$$

$$\Pi = 2^5 \cdot 3^6 \cdot 5 \cdot 13 \cdot 17 \cdot 29 \cdot 107 \cdot 281 \cdot 3061 \cdot 3917 \cdot 7741 \cdot 224309$$

$$r_0 = 1$$

$$r_1 = 5778 = 2 \cdot 3^3 \cdot 107$$

$$r_2 = 281 = 281$$

$$r_3 = 6 = 2 \cdot 3$$

$$z_{23} = -75 - 46i \qquad Abs^2 = 7741 = 7741$$

$$z_{31} = -52 - 333i \qquad Abs^2 = 113593 = 29 \cdot 3917$$

$$z_{12} = -1903 + 438i \qquad Abs^2 = 3813253 = 17 \cdot 224309$$

$$z_{32} = 6 + 55i \qquad Abs^2 = 3061 = 3061$$

$$z_{13} = 18 + 6i \qquad Abs^2 = 360 = 2^3 \cdot 3^2 \cdot 5$$

$$z_{21} = 3 + 2i \qquad Abs^2 = 13 = 13$$

8.485

$$49734032^4 - 47450804^4 = 4^4 \cdot \left(12433508^4 - 11862701^4\right) =$$

$$= 32004351^4 - 5106879^4 = 9^4 \cdot \left(3556039^4 - 567431^4\right) =$$

$$= 31999248^4 - 1829556^4 = 36^4 \cdot \left(888868^4 - 50821^4\right)$$

$$49734032^4 + 5106879^4 = 47450804^4 + 32004351^4 \tag{1}$$

$$12433508^4 + 457389^4 = 11862701^4 + 7999812^4 \tag{4}$$

$$3556039^4 + 203284^4 = 3555472^4 + 567431^4 \tag{9}$$

$$x_1 = 48592418 = 2 \cdot 7^2 \cdot 109 \cdot 4549$$

$$y_1 = 1141614 = 2 \cdot 3^9 \cdot 29$$

$$x_1^2 + y_1^2 = 2362526369611720 = 2^3 \cdot 5 \cdot 13 \cdot 37 \cdot 97 \cdot 233 \cdot 953 \cdot 5701$$

$$x_2 = 18555615 = 3^3 \cdot 5 \cdot 13 \cdot 97 \cdot 109$$

$$y_2 = 13448736 = 2^5 \cdot 3^2 \cdot 7^2 \cdot 953$$

$$x_2^2 + y_2^2 = 525179348025921 = 3^4 \cdot 29 \cdot 37 \cdot 233 \cdot 4549 \cdot 5701$$

$$x_3 = 16914402 = 2 \cdot 3^2 \cdot 37 \cdot 109 \cdot 233$$

$$y_3 = 15084846 = 2 \cdot 3^3 \cdot 7^2 \cdot 5701$$

$$x_3^2 + y_3^2 = 513649573861320 = 2^3 \cdot 3^4 \cdot 5 \cdot 13 \cdot 29 \cdot 97 \cdot 953 \cdot 4549$$

$$\Pi = 2^5 \cdot 3^9 \cdot 5 \cdot 7^2 \cdot 13 \cdot 29 \cdot 37 \cdot 97 \cdot 109 \cdot 233 \cdot 953 \cdot 4549 \cdot 5701$$

$$r_0 = 109 = 109$$

$$r_1 = 98 = 2 \cdot 7^2$$

$$r_2 = 27 = 3^3$$

$$r_3 = 18 = 2 \cdot 3^2$$

$$z_{23} = 65 + 18i \qquad Abs^2 = 4549 = 4549$$

$$z_{31} = 68 + 41i \qquad Abs^2 = 6305 = 5 \cdot 13 \cdot 97$$

$$z_{12} = 61 + 70i \qquad Abs^2 = 8621 = 37 \cdot 233$$

$$z_{32} = 18 + 45i \qquad Abs^2 = 2349 = 3^4 \cdot 29$$

$$z_{13} = 30 + 82i \qquad Abs^2 = 7624 = 2^3 \cdot 953$$

$$z_{21} = 15 + 74i \qquad Abs^2 = 5701 = 5701$$

8.567

$$57218008^4 - 56255396^4 = 4^4 \cdot \left(14304502^4 - 14063849^4\right) =$$

$$= 28999496^4 - 7923364^4 = 4^4 \cdot \left(7249874^4 - 1980841^4\right) =$$

$$= 28962047^4 - 4144961^4 = 1^4 \cdot \left(28962047^4 - 4144961^4\right)$$

$$14304502^4 + 1980841^4 = 14063849^4 + 7249874^4 \tag{4}$$

$$57218008^4 + 4144961^4 = 56255396^4 + 28962047^4 \tag{1}$$

$$28999496^4 + 4144961^4 = 28962047^4 + 7923364^4 \tag{1}$$

$$x_1 = 56736702 = 2 \cdot 3^2 \cdot 11 \cdot 29 \cdot 41 \cdot 241$$

$$y_1 = 481306 = 2 \cdot 7 \cdot 31 \cdot 1109$$

$$x_1^2 + y_1^2 = 3219285009302440 = 2^3 \cdot 5 \cdot 13 \cdot 37 \cdot 509 \cdot 1669 \cdot 196961$$

$$x_2 = 18461430 = 2 \cdot 3^2 \cdot 5 \cdot 13 \cdot 31 \cdot 509$$

$$y_2 = 10538066 = 2 \cdot 7 \cdot 11 \cdot 41 \cdot 1669$$

$$x_2^2 + y_2^2 = 451875232665256 = 2^3 \cdot 29 \cdot 37 \cdot 241 \cdot 1109 \cdot 196961$$

$$x_3 = 12408543 = 3^2 \cdot 7 \cdot 196961$$

$$y_3 = 16553504 = 2^5 \cdot 11 \cdot 31 \cdot 37 \cdot 41$$

$$x_3^2 + y_3^2 = 427990434060865 = 5 \cdot 13 \cdot 29 \cdot 241 \cdot 509 \cdot 1109 \cdot 1669$$

$$\Pi = 2^5 \cdot 3^2 \cdot 5 \cdot 7 \cdot 11 \cdot 13 \cdot 29 \cdot 31 \cdot 37 \cdot 41 \cdot 241 \cdot 509 \cdot 1109 \cdot 1669 \cdot 196961$$

$$r_0 = 9 = 3^2$$

$$r_1 = 902 = 2 \cdot 11 \cdot 41$$

$$r_2 = 62 = 2 \cdot 31$$

$$r_3 = 7 = 7$$

$$z_{23} = 67 + 50i \qquad Abs^2 = 6989 = 29 \cdot 241$$

$$z_{31} = 171 + 62i \qquad Abs^2 = 33085 = 5 \cdot 13 \cdot 509$$

$$z_{12} = 356 + 265i \qquad Abs^2 = 196961 = 196961$$

$$z_{32} = 25 + 22i \qquad Abs^2 = 1109 = 1109$$

$$z_{13} = 38 + 15i \qquad Abs^2 = 1669 = 1669$$

$$z_{21} = 10 + 14i \qquad Abs^2 = 296 = 2^3 \cdot 37$$

8.609

$$80325288^4 - 41563476^4 = 36^4 \cdot \left(2231258^4 - 1154541^4\right) =$$

$$= 79714568^4 - 36280748^4 = 4^4 \cdot \left(19928642^4 - 9070187^4\right) =$$

$$= 79087329^4 - 26275617^4 = 9^4 \cdot \left(8787481^4 - 2919513^4\right)$$

$$20081322^4 + 9070187^4 = 19928642^4 + 10390869^4 \tag{4}$$

$$8925032^4 + 2919513^4 = 8787481^4 + 4618164^4 \tag{9}$$

$$79714568^4 + 26275617^4 = 79087329^4 + 36280748^4 \tag{1}$$

$$x_1 = 60944382 = 2 \cdot 3^2 \cdot 53 \cdot 193 \cdot 331$$

$$y_1 = 19380906 = 2 \cdot 3^2 \cdot 1076717$$

$$x_1^2 + y_1^2 = 4089837214742760 = 2^3 \cdot 3^4 \cdot 5 \cdot 13 \cdot 97 \cdot 277 \cdot 1549 \cdot 2333$$

$$x_2 = 57997658 = 2 \cdot 97 \cdot 193 \cdot 1549$$

$$y_2 = 21716910 = 2 \cdot 3^8 \cdot 5 \cdot 331$$

$$x_2^2 + y_2^2 = 3835352513433064 = 2^3 \cdot 13 \cdot 53 \cdot 277 \cdot 2333 \cdot 1076717$$

$$x_3 = 52681473 = 3^2 \cdot 13 \cdot 193 \cdot 2333$$

$$y_3 = 26405856 = 2^5 \cdot 3^2 \cdot 277 \cdot 331$$

$$x_3^2 + y_3^2 = 3472606828542465 = 3^4 \cdot 5 \cdot 53 \cdot 97 \cdot 1549 \cdot 1076717$$

$$\Pi = 2^5 \cdot 3^8 \cdot 5 \cdot 13 \cdot 53 \cdot 97 \cdot 193 \cdot 277 \cdot 331 \cdot 1549 \cdot 2333 \cdot 1076717$$

$$r_0 = 193 = 193$$

$$r_1 = 5958 = 2 \cdot 3^2 \cdot 331$$

$$r_2 = 2 = 2$$

$$r_3 = 9 = 3^2$$

$$z_{23} = -7 - 2i \qquad Abs^2 = 53 = 53$$

$$z_{31} = 22 - 387i \qquad Abs^2 = 150253 = 97 \cdot 1549$$

$$z_{12} = -173 + 20i \qquad Abs^2 = 30329 = 13 \cdot 2333$$

$$z_{32} = 314 + 989i \qquad Abs^2 = 1076717 = 1076717$$

$$z_{13} = 18 + 9i \qquad Abs^2 = 405 = 3^4 \cdot 5$$

$$z_{21} = 46 + 10i \qquad Abs^2 = 2216 = 2^3 \cdot 277$$

8.906

$$91785840^4 - 89603460^4 = 60^4 \cdot \left(1529764^4 - 1493391^4\right) =$$

$$= 50547505^4 - 11071345^4 = 5^4 \cdot \left(10109501^4 - 2214269^4\right) =$$

$$= 50518608^4 - 3231108^4 = 12^4 \cdot \left(4209884^4 - 269259^4\right)$$

$$18357168^4 + 2214269^4 = 17920692^4 + 10109501^4 \tag{5}$$

$$7648820^4 + 269259^4 = 7466955^4 + 4209884^4 \tag{12}$$

$$50547505^4 + 3231108^4 = 50518608^4 + 11071345^4 \tag{1}$$

$$x_1 = 90694650 = 2 \cdot 3 \cdot 5^2 \cdot 397 \cdot 1523$$

$$y_1 = 1091190 = 2 \cdot 3 \cdot 5 \cdot 36373$$

$$x_1^2 + y_1^2 = 8226710234238600 = 2^3 \cdot 3^2 \cdot 5^2 \cdot 13 \cdot 17 \cdot 97 \cdot 173 \cdot 1232377$$

$$x_2 = 30809425 = 5^2 \cdot 1232377$$

$$y_2 = 19738080 = 2^5 \cdot 3^4 \cdot 5 \cdot 1523$$

$$x_2^2 + y_2^2 = 1338812470917025 = 5^2 \cdot 13 \cdot 17 \cdot 97 \cdot 173 \cdot 397 \cdot 36373$$

$$x_3 = 23643750 = 2 \cdot 3 \cdot 5^5 \cdot 13 \cdot 97$$

$$y_3 = 26874858 = 2 \cdot 3 \cdot 17 \cdot 173 \cdot 1523$$

$$x_3^2 + y_3^2 = 1281284906582664 = 2^3 \cdot 3^2 \cdot 397 \cdot 36373 \cdot 1232377$$

$$\Pi = 2^5 \cdot 3^4 \cdot 5^5 \cdot 13 \cdot 17 \cdot 97 \cdot 173 \cdot 397 \cdot 1523 \cdot 36373 \cdot 1232377$$

$$r_0 = 25 = 5^2$$

$$r_1 = 9138 = 2 \cdot 3 \cdot 1523$$

$$r_2 = 1$$

$$r_3 = 30 = 2 \cdot 3 \cdot 5$$

$$z_{23} = 19 - 6i \qquad Abs^2 = 397 = 397$$

$$z_{31} = 949 + 576i \qquad Abs^2 = 1232377 = 1232377$$

$$z_{12} = 30 + 175i \qquad Abs^2 = 31525 = 5^2 \cdot 13 \cdot 97$$

$$z_{32} = 182 + 57i \qquad Abs^2 = 36373 = 36373$$

$$z_{13} = 6 + 6i \qquad Abs^2 = 72 = 2^3 \cdot 3^2$$

$$z_{21} = 50 + 21i \qquad Abs^2 = 2941 = 17 \cdot 173$$

9.139

$$140326844^4 - 139033552^4 = 28^4 \cdot \left(5011673^4 - 4965484^4\right) =$$

$$= 61413863^4 - 18878503^4 = 7^4 \cdot \left(8773409^4 - 2696929^4\right) =$$

$$= 61306948^4 - 12960784^4 = 4^4 \cdot \left(15326737^4 - 3240196^4\right)$$

$$20046692^4 + 2696929^4 = 19861936^4 + 8773409^4 \tag{7}$$

$$35081711^4 + 3240196^4 = 34758388^4 + 15326737^4 \tag{4}$$

$$61413863^4 + 12960784^4 = 61306948^4 + 18878503^4 \tag{1}$$

$$x_1 = 139680198 = 2 \cdot 3^2 \cdot 7 \cdot 1108573$$

$$y_1 = 646646 = 2 \cdot 7 \cdot 11 \cdot 13 \cdot 17 \cdot 19$$

$$x_1^2 + y_1^2 = 19510975864368520 = 2^3 \cdot 5 \cdot 7^2 \cdot 37 \cdot 197 \cdot 401 \cdot 1117 \cdot 3049$$

$$x_2 = 40146183 = 3^2 \cdot 7 \cdot 11 \cdot 19 \cdot 3049$$

$$y_2 = 21267680 = 2^5 \cdot 5 \cdot 7 \cdot 17 \cdot 1117$$

$$x_2^2 + y_2^2 = 2064030222051889 = 7^2 \cdot 13 \cdot 37 \cdot 197 \cdot 401 \cdot 1108573$$

$$x_3 = 24173082 = 2 \cdot 3^2 \cdot 17 \cdot 197 \cdot 401$$

$$y_3 = 37133866 = 2 \cdot 7^4 \cdot 11 \cdot 19 \cdot 37$$

$$x_3^2 + y_3^2 = 1963261897484680 = 2^3 \cdot 5 \cdot 13 \cdot 1117 \cdot 3049 \cdot 1108573$$

$$\Pi = 2^5 \cdot 3^2 \cdot 5 \cdot 7^4 \cdot 11 \cdot 13 \cdot 17 \cdot 19 \cdot 37 \cdot 197 \cdot 401 \cdot 1117 \cdot 3049 \cdot 1108573$$

$$r_0 = 9 = 3^2$$

$$r_1 = 14 = 2 \cdot 7$$

$$r_2 = 1463 = 7 \cdot 11 \cdot 19$$

$$r_3 = 34 = 2 \cdot 17$$

$$z_{23} = 742 - 747i \qquad Abs^2 = 1108573 = 1108573$$

$$z_{31} = 32 + 45i \qquad Abs^2 = 3049 = 3049$$

$$z_{12} = 34 + 279i \qquad Abs^2 = 78997 = 197 \cdot 401$$

$$z_{32} = 3 + 2i \qquad Abs^2 = 13 = 13$$

$$z_{13} = 114 + 178i \qquad Abs^2 = 44680 = 2^3 \cdot 5 \cdot 1117$$

$$z_{21} = 42 + 7i \qquad Abs^2 = 1813 = 7^2 \cdot 37$$

9.173

$$197237095^4 - 150215015^4 = 5^4 \cdot \left(39447419^4 - 30043003^4\right) =$$

$$= 191610280^4 - 136159640^4 = 40^4 \cdot \left(4790257^4 - 3403991^4\right) =$$

$$= 178105688^4 - 37694312^4 = 8^4 \cdot \left(22263211^4 - 4711789^4\right)$$

$$39447419^4 + 27231928^4 = 38322056^4 + 30043003^4 \tag{5}$$

$$197237095^4 + 37694312^4 = 178105688^4 + 150215015^4 \tag{1}$$

$$23951285^4 + 4711789^4 = 22263211^4 + 17019955^4 \tag{8}$$

$$x_1 = 173726055 = 3^2 \cdot 5 \cdot 83 \cdot 193 \cdot 241$$

$$y_1 = 23511040 = 2^{14} \cdot 5 \cdot 7 \cdot 41$$

$$x_1^2 + y_1^2 = 30733511187744625 = 5^3 \cdot 13 \cdot 1193 \cdot 113809 \cdot 139297$$

$$x_2 = 163884960 = 2^5 \cdot 3^2 \cdot 5 \cdot 113809$$

$$y_2 = 27725320 = 2^3 \cdot 5 \cdot 7 \cdot 83 \cdot 1193$$

$$x_2^2 + y_2^2 = 27626973483304000 = 2^6 \cdot 5^3 \cdot 13 \cdot 41 \cdot 193 \cdot 241 \cdot 139297$$

$$x_3 = 70205688 = 2^3 \cdot 3^2 \cdot 7 \cdot 139297$$

$$y_3 = 107900000 = 2^5 \cdot 5^5 \cdot 13 \cdot 83$$

$$x_3^2 + y_3^2 = 16571248627553344 = 2^6 \cdot 41 \cdot 193 \cdot 241 \cdot 1193 \cdot 113809$$

$$\Pi = 2^{14} \cdot 3^2 \cdot 5^5 \cdot 7 \cdot 13 \cdot 41 \cdot 83 \cdot 193 \cdot 241 \cdot 1193 \cdot 113809 \cdot 139297$$

$$r_0 = 9 = 3^2$$

$$r_1 = 415 = 5 \cdot 83$$

$$r_2 = 160 = 2^5 \cdot 5$$

$$r_3 = 56 = 2^3 \cdot 7$$

$$z_{23} = 152 - 153i \qquad Abs^2 = 46513 = 193 \cdot 241$$

$$z_{31} = 160 + 297i \qquad Abs^2 = 113809 = 113809$$

$$z_{12} = 56 + 369i \qquad Abs^2 = 139297 = 139297$$

$$z_{32} = 32 + 40i \qquad Abs^2 = 2624 = 2^6 \cdot 41$$

$$z_{13} = 13 + 32i \qquad Abs^2 = 1193 = 1193$$

$$z_{21} = 40 + 5i \qquad Abs^2 = 1625 = 5^3 \cdot 13$$

9.630

$$751888607^4 - 509011231^4 = 1^4 \cdot \left(751888607^4 - 509011231^4\right) =$$

$$= 728659604^4 - 414173824^4 = 4^4 \cdot \left(182164901^4 - 103543456^4\right) =$$

$$= 708852076^4 - 31047392^4 = 4^4 \cdot \left(177213019^4 - 7761848^4\right)$$

$$751888607^4 + 414173824^4 = 728659604^4 + 509011231^4 \quad (1)$$

$$751888607^4 + 31047392^4 = 708852076^4 + 509011231^4 \quad (1)$$

$$182164901^4 + 7761848^4 = 177213019^4 + 103543456^4 \quad (4)$$

$$x_1 = 630449919 = 3^3 \cdot 11 \cdot 37 \cdot 103 \cdot 557$$

$$y_1 = 121438688 = 2^5 \cdot 7 \cdot 53^2 \cdot 193$$

$$x_1^2 + y_1^2 = 412214455310267905 = 5 \cdot 113 \cdot 461 \cdot 961981 \cdot 1645157$$

$$x_2 = 571416714 = 2 \cdot 3^3 \cdot 11 \cdot 961981$$

$$y_2 = 157242890 = 2 \cdot 5 \cdot 7 \cdot 103 \cdot 113 \cdot 193$$

$$x_2^2 + y_2^2 = 351242387494109896 = 2^3 \cdot 37 \cdot 53^2 \cdot 461 \cdot 557 \cdot 1645157$$

$$x_3 = 369949734 = 2 \cdot 3^3 \cdot 7 \cdot 11 \cdot 193 \cdot 461$$

$$y_3 = 338902342 = 2 \cdot 103 \cdot 1645157$$

$$x_3^2 + y_3^2 = 251717603099755720 = 2^3 \cdot 5 \cdot 37 \cdot 53^2 \cdot 113 \cdot 557 \cdot 961981$$

$$\Pi = 2^5 \cdot 3^3 \cdot 5 \cdot 7 \cdot 11 \cdot 37 \cdot 53^2 \cdot 103 \cdot 113 \cdot 193 \cdot 461 \cdot 557 \cdot 961981 \cdot 1645157$$

$$r_0 = 297 = 3^3 \cdot 11$$

$$r_1 = 103 = 103$$

$$r_2 = 2 = 2$$

$$r_3 = 2702 = 2 \cdot 7 \cdot 193$$

$$z_{23} = 65 + 128i \qquad Abs^2 = 20609 = 37 \cdot 557$$

$$z_{31} = 891 - 410i \qquad Abs^2 = 961981 = 961981$$

$$z_{12} = 10 + 19i \qquad Abs^2 = 461 = 461$$

$$z_{32} = 146 + 34i \qquad Abs^2 = 22472 = 2^3 \cdot 53^2$$

$$z_{13} = 22 + 9i \qquad Abs^2 = 565 = 5 \cdot 113$$

$$z_{21} = 566 + 1151i \qquad Abs^2 = 1645157 = 1645157$$

9.635

$$657153271^4 - 613063351^4 = 1^4 \cdot \left(657153271^4 - 613063351^4\right) =$$

$$= 469658376^4 - 241846092^4 = 36^4 \cdot \left(13046066^4 - 6717947^4\right) =$$

$$= 461665368^4 - 117778356^4 = 36^4 \cdot \left(12824038^4 - 3271621^4\right)$$

$$657153271^4 + 241846092^4 = 613063351^4 + 469658376^4 \quad (1)$$

$$657153271^4 + 117778356^4 = 613063351^4 + 461665368^4 \quad (1)$$

$$13046066^4 + 3271621^4 = 12824038^4 + 6717947^4 \quad (36)$$

$$x_1 = 635108311 = 10391 \cdot 61121$$

$$y_1 = 22044960 = 2^5 \cdot 3^9 \cdot 5 \cdot 7$$

$$x_1^2 + y_1^2 = 403848546962674321 = 17 \cdot 29 \cdot 61 \cdot 1549 \cdot 7457 \cdot 1162589$$

$$x_2 = 355752234 = 2 \cdot 3^2 \cdot 17 \cdot 1162589$$

$$y_2 = 113906142 = 2 \cdot 3^3 \cdot 7 \cdot 29 \cdot 10391$$

$$x_2^2 + y_2^2 = 139534261181314920 = 2^3 \cdot 3^4 \cdot 5 \cdot 61 \cdot 1549 \cdot 7457 \cdot 61121$$

$$x_3 = 171943506 = 2 \cdot 3^3 \cdot 7 \cdot 61 \cdot 7457$$

$$y_3 = 289721862 = 2 \cdot 3^2 \cdot 1549 \cdot 10391$$

$$x_3^2 + y_3^2 = 113503326576319080 = 2^3 \cdot 3^4 \cdot 5 \cdot 17 \cdot 29 \cdot 61121 \cdot 1162589$$

$$\Pi = 2^5 \cdot 3^9 \cdot 5 \cdot 7 \cdot 17 \cdot 29 \cdot 61 \cdot 1549 \cdot 7457 \cdot 10391 \cdot 61121 \cdot 1162589$$

$$r_0 = 1$$

$$r_1 = 10391 = 10391$$

$$r_2 = 18 = 2 \cdot 3^2$$

$$r_3 = 378 = 2 \cdot 3^3 \cdot 7$$

$$z_{23} = 164 + 185i \qquad Abs^2 = 61121 = 61121$$

$$z_{31} = 4147 - 1602i \qquad Abs^2 = 19764013 = 17 \cdot 1162589$$

$$z_{12} = 251 + 626i \qquad Abs^2 = 454877 = 61 \cdot 7457$$

$$z_{32} = 54 + 18i \qquad Abs^2 = 3240 = 2^3 \cdot 3^4 \cdot 5$$

$$z_{13} = 5 + 2i \qquad Abs^2 = 29 = 29$$

$$z_{21} = 18 + 35i \qquad Abs^2 = 1549 = 1549$$

10.117

$$1180872001^4 - 1161828737^4 = 1^4 \cdot \left(1180872001^4 - 1161828737^4\right) =$$

$$= 616132528^4 - 383720564^4 = 4^4 \cdot \left(154033132^4 - 95930141^4\right) =$$

$$= 601308944^4 - 301870196^4 = 4^4 \cdot \left(150327236^4 - 75467549^4\right)$$

$$1180872001^4 + 383720564^4 = 1161828737^4 + 616132528^4 \quad (1)$$

$$1180872001^4 + 301870196^4 = 1161828737^4 + 601308944^4 \quad (1)$$

$$154033132^4 + 75467549^4 = 150327236^4 + 95930141^4 \quad (4)$$

$$x_1 = 1171350369 = 3^3 \cdot 7 \cdot 97 \cdot 181 \cdot 353$$

$$y_1 = 9521632 = 2^5 \cdot 17 \cdot 23 \cdot 761$$

$$x_1^2 + y_1^2 = 1372152348432379585 = 5 \cdot 821 \cdot 1013 \cdot 249497 \cdot 1322557$$

$$x_2 = 499926546 = 2 \cdot 3^3 \cdot 7 \cdot 1322557$$

$$y_2 = 116205982 = 2 \cdot 17 \cdot 23 \cdot 181 \cdot 821$$

$$x_2^2 + y_2^2 = 263430381648074440 = 2^3 \cdot 5 \cdot 97 \cdot 353 \cdot 761 \cdot 1013 \cdot 249497$$

$$x_3 = 149719374 = 2 \cdot 3^3 \cdot 7 \cdot 17 \cdot 23 \cdot 1013$$

$$y_3 = 451589570 = 2 \cdot 5 \cdot 181 \cdot 249497$$

$$x_3^2 + y_3^2 = 226349030683736776 = 2^3 \cdot 97 \cdot 353 \cdot 761 \cdot 821 \cdot 1322557$$

$$\Pi = 2^5 \cdot 3^3 \cdot 5 \cdot 7 \cdot 17 \cdot 23 \cdot 97 \cdot 181 \cdot 353 \cdot 761 \cdot 821 \cdot 1013 \cdot 249497 \cdot 1322557$$

$$r_0 = 189 = 3^3 \cdot 7$$

$$r_1 = 181 = 181$$

$$r_2 = 2 = 2$$

$$r_3 = 782 = 2 \cdot 17 \cdot 23$$

$$z_{23} = 185 - 4i \qquad Abs^2 = 34241 = 97 \cdot 353$$

$$z_{31} = 779 + 846i \qquad Abs^2 = 1322557 = 1322557$$

$$z_{12} = 22 + 23i \qquad Abs^2 = 1013 = 1013$$

$$z_{32} = 2 + 78i \qquad Abs^2 = 6088 = 2^3 \cdot 761$$

$$z_{13} = 14 + 25i \qquad Abs^2 = 821 = 821$$

$$z_{21} = 614 + 933i \qquad Abs^2 = 1247485 = 5 \cdot 249497$$

10.158

$$1596600137^4 - 1582784777^4 = 1^4 \cdot \left(1596600137^4 - 1582784777^4\right) =$$

$$= 716243652^4 - 450436344^4 = 12^4 \cdot \left(59686971^4 - 37536362^4\right) =$$

$$= 702011844^4 - 380055768^4 = 12^4 \cdot \left(58500987^4 - 31671314^4\right)$$

$$1596600137^4 + 450436344^4 = 1582784777^4 + 716243652^4 \quad (1)$$

$$1596600137^4 + 380055768^4 = 1582784777^4 + 702011844^4 \quad (1)$$

$$59686971^4 + 31671314^4 = 58500987^4 + 37536362^4 \quad (12)$$

$$x_1 = 1589692457 = 17 \cdot 37 \cdot 73 \cdot 89 \cdot 389$$

$$y_1 = 6907680 = 2^5 \cdot 3^4 \cdot 5 \cdot 13 \cdot 41$$

$$x_1^2 + y_1^2 = 2527169823885679249 = 1373 \cdot 23189 \cdot 72661 \cdot 1092397$$

$$x_2 = 583339998 = 2 \cdot 3 \cdot 89 \cdot 1092397$$

$$y_2 = 132903654 = 2 \cdot 3 \cdot 13 \cdot 17 \cdot 73 \cdot 1373$$

$$x_2^2 + y_2^2 = 357948934513191720 = 2^3 \cdot 3^2 \cdot 5 \cdot 37 \cdot 41 \cdot 389 \cdot 23189 \cdot 72661$$

$$x_3 = 160978038 = 2 \cdot 3 \cdot 13 \cdot 89 \cdot 23189$$

$$y_3 = 541033806 = 2 \cdot 3 \cdot 17 \cdot 73 \cdot 72661$$

$$x_3^2 + y_3^2 = 318631507953175080 = 2^3 \cdot 3^2 \cdot 5 \cdot 37 \cdot 41 \cdot 389 \cdot 1373 \cdot 1092397$$

$$\Pi = 2^5 \cdot 3^4 \cdot 5 \cdot 13 \cdot 17 \cdot 37 \cdot 41 \cdot 73 \cdot 89 \cdot 389 \cdot 1373 \cdot 23189 \cdot 72661 \cdot 1092397$$

$$r_0 = 89 = 89$$

$$r_1 = 1241 = 17 \cdot 73$$

$$r_2 = 6 = 2 \cdot 3$$

$$r_3 = 78 = 2 \cdot 3 \cdot 13$$

$$z_{23} = 77 + 92i \qquad Abs^2 = 14393 = 37 \cdot 389$$

$$z_{31} = 979 + 366i \qquad Abs^2 = 1092397 = 1092397$$

$$z_{12} = 142 + 55i \qquad Abs^2 = 23189 = 23189$$

$$z_{32} = 66 + 102i \qquad Abs^2 = 14760 = 2^3 \cdot 3^2 \cdot 5 \cdot 41$$

$$z_{13} = 37 + 2i \qquad Abs^2 = 1373 = 1373$$

$$z_{21} = 169 + 210i \qquad Abs^2 = 72661 = 72661$$

10.302

$$30717121774 - 29800918894 = 94 \cdot \left(3413013534 - 3311213214\right) =$$

$$= 18603583924 - 11618506444 = 364 \cdot \left(516766224 - 322736294\right) =$$

$$= 18054761844 - 8280304844 = 44 \cdot \left(4513690464 - 2070076214\right)$$

$$3413013534 + 1290945164 = 3311213214 + 2067064884 \quad (9)$$

$$30717121774 + 8280304844 = 29800918894 + 18054761844 \quad (1)$$

$$4650895984 + 2070076214 = 4513690464 + 2904626614 \quad (4)$$

$$x_1 = 3025902033 = 3^2 \cdot 7 \cdot 11 \cdot 31 \cdot 83 \cdot 1697$$

$$y_1 = 45810144 = 2^5 \cdot 3^3 \cdot 37 \cdot 1433$$

$$x_1^2 + y_1^2 = 9158181682606833825 = 3^4 \cdot 5^2 \cdot 13 \cdot 53 \cdot 61 \cdot 2081 \cdot 6857 \cdot 7541$$

$$x_2 = 1511104518 = 2 \cdot 3^3 \cdot 7 \cdot 11 \cdot 53 \cdot 6857$$

$$y_2 = 349253874 = 2 \cdot 3^2 \cdot 31 \cdot 83 \cdot 7541$$

$$x_2^2 + y_2^2 = 2405415132824020200 = 2^3 \cdot 3^4 \cdot 5^2 \cdot 13 \cdot 37 \cdot 61 \cdot 1433 \cdot 1697 \cdot 2081$$

$$x_3 = 488722850 = 2 \cdot 5^2 \cdot 7 \cdot 11 \cdot 61 \cdot 2081$$

$$y_3 = 1316753334 = 2 \cdot 3^9 \cdot 13 \cdot 31 \cdot 83$$

$$x_3^2 + y_3^2 = 1972689366712238056 = 2^3 \cdot 37 \cdot 53 \cdot 1433 \cdot 1697 \cdot 6857 \cdot 7541$$

$$\Pi = 2^5 \cdot 3^9 \cdot 5^2 \cdot 7 \cdot 11 \cdot 13 \cdot 31 \cdot 37 \cdot 53 \cdot 61 \cdot 83 \cdot 1433 \cdot 1697 \cdot 2081 \cdot 6857 \cdot 7541$$

$$r_0 = 77 = 7 \cdot 11$$

$$r_1 = 23157 = 3^2 \cdot 31 \cdot 83$$

$$r_2 = 54 = 2 \cdot 3^3$$

$$r_3 = 2 = 2$$

$$z_{23} = 41 + 4i \qquad Abs^2 = 1697 = 1697$$

$$z_{31} = 539 + 270i \qquad Abs^2 = 363421 = 53 \cdot 6857$$

$$z_{12} = 862 + 1559i \qquad Abs^2 = 3173525 = 5^2 \cdot 61 \cdot 2081$$

$$z_{32} = 258 + 598i \qquad Abs^2 = 424168 = 2^3 \cdot 37 \cdot 1433$$

$$z_{13} = 50 + 71i \qquad Abs^2 = 7541 = 7541$$

$$z_{21} = 18 + 27i \qquad Abs^2 = 1053 = 3^4 \cdot 13$$

10.427

$$4275254036^4 - 4274662012^4 = 4^4 \cdot \left(1068813509^4 - 1068665503^4\right) =$$

$$= 660603913^4 - 271493129^4 = 1^4 \cdot \left(660603913^4 - 271493129^4\right) =$$

$$= 660079796^4 - 263615324^4 = 4^4 \cdot \left(165019949^4 - 65903831^4\right)$$

$$4275254036^4 + 271493129^4 = 4274662012^4 + 660603913^4 \quad (1)$$

$$1068813509^4 + 65903831^4 = 1068665503^4 + 165019949^4 \quad (4)$$

$$660603913^4 + 263615324^4 = 660079796^4 + 271493129^4 \quad (1)$$

$$x_1 = 4274958024 = 2^3 \cdot 3^2 \cdot 157 \cdot 317 \cdot 1193$$

$$y_1 = 296012 = 2^2 \cdot 43 \cdot 1721$$

$$x_1^2 + y_1^2 = 18275266194585088720 = 2^4 \cdot 5 \cdot 37 \cdot 3461 \cdot 6709 \cdot 8837 \cdot 30089$$

$$x_2 = 466048521 = 3^2 \cdot 1721 \cdot 30089$$

$$y_2 = 194555392 = 2^9 \cdot 43 \cdot 8837$$

$$x_2^2 + y_2^2 = 255053024482561105 = 5 \cdot 37 \cdot 157 \cdot 317 \cdot 1193 \cdot 3461 \cdot 6709$$

$$x_3 = 198232236 = 2^2 \cdot 3^2 \cdot 37 \cdot 43 \cdot 3461$$

$$y_3 = 461847560 = 2^3 \cdot 5 \cdot 1721 \cdot 6709$$

$$x_3^2 + y_3^2 = 252599188067513296 = 2^4 \cdot 157 \cdot 317 \cdot 1193 \cdot 8837 \cdot 30089$$

$$\Pi = 2^9 \cdot 3^2 \cdot 5 \cdot 37 \cdot 43 \cdot 157 \cdot 317 \cdot 1193 \cdot 1721 \cdot 3461 \cdot 6709 \cdot 8837 \cdot 30089$$

$$r_0 = 9 = 3^2$$

$$r_1 = 8 = 2^3$$

$$r_2 = 1721 = 1721$$

$$r_3 = 172 = 2^2 \cdot 43$$

$$z_{23} = 5416 + 5481i \qquad Abs^2 = 59374417 = 157 \cdot 317 \cdot 1193$$

$$z_{31} = 160 - 67i \qquad Abs^2 = 30089 = 30089$$

$$z_{12} = 136 + 331i \qquad Abs^2 = 128057 = 37 \cdot 3461$$

$$z_{32} = 1 \qquad Abs^2 = 1$$

$$z_{13} = 376 + 4i \qquad Abs^2 = 141392 = 2^4 \cdot 8837$$

$$z_{21} = 128 + 131i \qquad Abs^2 = 33545 = 5 \cdot 6709$$

10.477

$$4779990264^4 - 4779753552^4 = 168^4 \cdot \left(28452323^4 - 28450914^4\right) =$$

$$= 628280072^4 - 478478672^4 = 56^4 \cdot \left(11219287^4 - 8544262^4\right) =$$

$$= 625923087^4 - 473081841^4 = 3^4 \cdot \left(208641029^4 - 157693947^4\right)$$

$$85356969^4 + 8544262^4 = 85352742^4 + 11219287^4 \tag{56}$$

$$1593330088^4 + 157693947^4 = 1593251184^4 + 208641029^4 \tag{3}$$

$$628280072^4 + 473081841^4 = 625923087^4 + 478478672^4 \tag{1}$$

$$x_1 = 4779871908 = 2^2 \cdot 3 \cdot 7 \cdot 157 \cdot 293 \cdot 1237$$

$$y_1 = 118356 = 2^2 \cdot 3 \cdot 7 \cdot 1409$$

$$x_1^2 + y_1^2 = 22847175470895703200 = 2^5 \cdot 3^2 \cdot 5^2 \cdot 7^2 \cdot 13 \cdot 149 \cdot 1229 \cdot 1321 \cdot 20593$$

$$x_2 = 553379372 = 2^2 \cdot 7 \cdot 13 \cdot 1229 \cdot 1237$$

$$y_2 = 74900700 = 2^2 \cdot 3^4 \cdot 5^2 \cdot 7 \cdot 1321$$

$$x_2^2 + y_2^2 = 311838844215604384 = 2^5 \cdot 7^2 \cdot 149 \cdot 157 \cdot 293 \cdot 1409 \cdot 20593$$

$$x_3 = 76420623 = 3 \cdot 1237 \cdot 20593$$

$$y_3 = 549502464 = 2^9 \cdot 3 \cdot 7^4 \cdot 149$$

$$x_3^2 + y_3^2 = 307793069561779425 = 3^2 \cdot 5^2 \cdot 13 \cdot 157 \cdot 293 \cdot 1229 \cdot 1321 \cdot 1409$$

$$\Pi = 2^9 \cdot 3^4 \cdot 5^2 \cdot 7^4 \cdot 13 \cdot 149 \cdot 157 \cdot 293 \cdot 1229 \cdot 1237 \cdot 1321 \cdot 1409 \cdot 20593$$

$$r_0 = 1237 = 1237$$

$$r_1 = 84 = 2^2 \cdot 3 \cdot 7$$

$$r_2 = 28 = 2^2 \cdot 7$$

$$r_3 = 3 = 3$$

$$z_{23} = 175 + 124i \qquad Abs^2 = 46001 = 157 \cdot 293$$

$$z_{31} = 109 - 64i \qquad Abs^2 = 15977 = 13 \cdot 1229$$

$$z_{12} = 12 + 143i \qquad Abs^2 = 20593 = 20593$$

$$z_{32} = 28 + 25i \qquad Abs^2 = 1409 = 1409$$

$$z_{13} = 387 + 384i \qquad Abs^2 = 297225 = 3^2 \cdot 5^2 \cdot 1321$$

$$z_{21} = 84 + 476i \qquad Abs^2 = 233632 = 2^5 \cdot 7^2 \cdot 149$$

10.611

$$6427460484^4 - 5799560808^4 = 12^4 \cdot \left(535621707^4 - 483296734^4\right) =$$

$$= 5594408068^4 - 4483641784^4 = 4^4 \cdot \left(1398602017^4 - 1120910446^4\right) =$$

$$= 4989936609^4 - 2584078431^4 = 3^4 \cdot \left(1663312203^4 - 861359477^4\right)$$

$$1606865121^4 + 1120910446^4 = 1449890202^4 + 1398602017^4 \quad (4)$$

$$2142486828^4 + 861359477^4 = 1933186936^4 + 1663312203^4 \quad (3)$$

$$5594408068^4 + 2584078431^4 = 4989936609^4 + 4483641784^4 \quad (1)$$

$$x_1 = 6113510646 = 2 \cdot 3 \cdot 61 \cdot 1429 \cdot 11689$$

$$y_1 = 313949838 = 2 \cdot 3 \cdot 151 \cdot 197 \cdot 1759$$

$$x_1^2 + y_1^2 = 37473576919535563560 = 2^3 \cdot 3^2 \cdot 5 \cdot 13 \cdot 37 \cdot 53 \cdot 101 \cdot 397 \cdot 1949 \cdot 52249$$

$$x_2 = 5039024926 = 2 \cdot 13 \cdot 53 \cdot 61 \cdot 151 \cdot 397$$

$$y_2 = 555383142 = 2 \cdot 3^4 \cdot 1759 \cdot 1949$$

$$x_2^2 + y_2^2 = 25700222639267097640 = 2^3 \cdot 5 \cdot 37 \cdot 101 \cdot 197 \cdot 1429 \cdot 11689 \cdot 52249$$

$$x_3 = 1202929089 = 3 \cdot 37 \cdot 61 \cdot 101 \cdot 1759$$

$$y_3 = 3787007520 = 2^5 \cdot 3 \cdot 5 \cdot 151 \cdot 52249$$

$$x_3^2 + y_3^2 = 15788464349698920321 = 3^2 \cdot 13 \cdot 53 \cdot 197 \cdot 397 \cdot 1429 \cdot 1949 \cdot 11689$$

$$\Pi = 2^5 \cdot 3^4 \cdot 5 \cdot 13 \cdot 37 \cdot 53 \cdot 61 \cdot 101 \cdot 151 \cdot 197 \cdot 397 \cdot 1429 \cdot 1759 \cdot 1949 \cdot 11689 \cdot 52249$$

$$r_0 = 61 = 61$$

$$r_1 = 6 = 2 \cdot 3$$

$$r_2 = 302 = 2 \cdot 151$$

$$r_3 = 5277 = 3 \cdot 1759$$

$$z_{23} = 2334 + 3355i \qquad Abs^2 = 16703581 = 1429 \cdot 11689$$

$$z_{31} = 427 + 302i \qquad Abs^2 = 273533 = 13 \cdot 53 \cdot 397$$

$$z_{12} = 61 + 4i \qquad Abs^2 = 3737 = 37 \cdot 101$$

$$z_{32} = 1 + 14i \qquad Abs^2 = 197 = 197$$

$$z_{13} = 129 + 30i \qquad Abs^2 = 17541 = 3^2 \cdot 1949$$

$$z_{21} = 698 + 1266i \qquad Abs^2 = 2089960 = 2^3 \cdot 5 \cdot 52249$$

10.651

$$6621888824^4 - 6399150812^4 = 68^4 \cdot \left(97380718^4 - 94105159^4\right) =$$

$$= 4017771432^4 - 1956085212^4 = 204^4 \cdot \left(19694958^4 - 9588653^4\right) =$$

$$= 3968658927^4 - 1208210001^4 = 3^4 \cdot \left(1322886309^4 - 402736667^4\right)$$

$$97380718^4 + 28765959^4 = 94105159^4 + 59084874^4 \tag{68}$$

$$6621888824^4 + 1208210001^4 = 6399150812^4 + 3968658927^4 \tag{1}$$

$$1339257144^4 + 402736667^4 = 1322886309^4 + 652028404^4 \tag{3}$$

$$x_1 = 6510519818 = 2 \cdot 11 \cdot 17 \cdot 3467 \cdot 5021$$

$$y_1 = 111369006 = 2 \cdot 3^4 \cdot 7 \cdot 17 \cdot 53 \cdot 109$$

$$x_1^2 + y_1^2 = 42399271356068181160 = 2^3 \cdot 5 \cdot 17^2 \cdot 29 \cdot 101 \cdot 113 \cdot 37021 \cdot 299333$$

$$x_2 = 2986928322 = 2 \cdot 3 \cdot 7 \cdot 17 \cdot 113 \cdot 37021$$

$$y_2 = 1030843110 = 2 \cdot 3 \cdot 5 \cdot 11 \cdot 17 \cdot 53 \cdot 3467$$

$$x_2^2 + y_2^2 = 9984378318200207784 = 2^3 \cdot 3^2 \cdot 17^2 \cdot 29 \cdot 101 \cdot 109 \cdot 5021 \cdot 299333$$

$$x_3 = 1380224463 = 3 \cdot 29 \cdot 53 \cdot 299333$$

$$y_3 = 2588434464 = 2^5 \cdot 3 \cdot 7 \cdot 11 \cdot 101 \cdot 3467$$

$$x_3^2 + y_3^2 = 8605012542686605665 = 3^2 \cdot 5 \cdot 17^4 \cdot 109 \cdot 113 \cdot 5021 \cdot 37021$$

$$\Pi = 2^5 \cdot 3^4 \cdot 5 \cdot 7 \cdot 11 \cdot 17^4 \cdot 29 \cdot 53 \cdot 101 \cdot 109 \cdot 113 \cdot 3467 \cdot 5021 \cdot 37021 \cdot 299333$$

$$r_0 = 1$$

$$r_1 = 76274 = 2 \cdot 11 \cdot 3467$$

$$r_2 = 42 = 2 \cdot 3 \cdot 7$$

$$r_3 = 159 = 3 \cdot 53$$

$$z_{23} = 291 - 26i \qquad Abs^2 = 85357 = 17 \cdot 5021$$

$$z_{31} = 2730 + 7979i \qquad Abs^2 = 71117341 = 17 \cdot 113 \cdot 37021$$

$$z_{12} = 2601 + 1384i \qquad Abs^2 = 8680657 = 29 \cdot 299333$$

$$z_{32} = 6 + 129i \qquad Abs^2 = 16677 = 3^2 \cdot 17 \cdot 109$$

$$z_{13} = 6 + 7i \qquad Abs^2 = 85 = 5 \cdot 17$$

$$z_{21} = 22 + 18i \qquad Abs^2 = 808 = 2^3 \cdot 101$$

10.905

$$9865447832^4 - 8250756572^4 = 4^4 \cdot \left(2466361958^4 - 2062689143^4\right) =$$

$$= 8782377144^4 - 5772976932^4 = 12^4 \cdot \left(731864762^4 - 481081411^4\right) =$$

$$= 8348157633^4 - 2076294399^4 = 3^4 \cdot \left(2782719211^4 - 692098133^4\right)$$

$$2466361958^4 + 1443244233^4 = 2195594286^4 + 2062689143^4 \tag{4}$$

$$9865447832^4 + 2076294399^4 = 8348157633^4 + 8250756572^4 \tag{1}$$

$$2927459048^4 + 692098133^4 = 2782719211^4 + 1924325644^4 \tag{3}$$

$$x_1 = 9058102202 = 2 \cdot 41 \cdot 110464661$$

$$y_1 = 807345630 = 2 \cdot 3^6 \cdot 5 \cdot 7 \cdot 13 \cdot 1217$$

$$x_1^2 + y_1^2 = 82701022468157345704 = 2^3 \cdot 29 \cdot 37 \cdot 73 \cdot 4957 \cdot 9661 \cdot 2755861$$

$$x_2 = 7277677038 = 2 \cdot 3^3 \cdot 37 \cdot 41 \cdot 73 \cdot 1217$$

$$y_2 = 1504700106 = 2 \cdot 3 \cdot 7 \cdot 13 \cdot 2755861$$

$$x_2^2 + y_2^2 = 55228705478428864680 = 2^3 \cdot 3^2 \cdot 5 \cdot 29 \cdot 4957 \cdot 9661 \cdot 110464661$$

$$x_3 = 3135931617 = 3 \cdot 7 \cdot 13 \cdot 29 \cdot 41 \cdot 9661$$

$$y_3 = 5212226016 = 2^5 \cdot 3^3 \cdot 1217 \cdot 4957$$

$$x_3^2 + y_3^2 = 37001367148367466945 = 3^2 \cdot 5 \cdot 37 \cdot 73 \cdot 2755861 \cdot 110464661$$

$$\Pi = 2^5 \cdot 3^6 \cdot 5 \cdot 7 \cdot 13 \cdot 29 \cdot 37 \cdot 41 \cdot 73 \cdot 1217 \cdot 4957 \cdot 9661 \cdot 2755861 \cdot 110464661$$

$$r_0 = 41 = 41$$

$$r_1 = 2 = 2$$

$$r_2 = 65718 = 2 \cdot 3^3 \cdot 1217$$

$$r_3 = 273 = 3 \cdot 7 \cdot 13$$

$$z_{23} = 7831 + 7010i \qquad Abs^2 = 110464661 = 110464661$$

$$z_{31} = 51 - 10i \qquad Abs^2 = 2701 = 37 \cdot 73$$

$$z_{12} = 212 + 485i \qquad Abs^2 = 280169 = 29 \cdot 9661$$

$$z_{32} = 6 + 3i \qquad Abs^2 = 45 = 3^2 \cdot 5$$

$$z_{13} = 1481 + 750i \qquad Abs^2 = 2755861 = 2755861$$

$$z_{21} = 110 + 166i \qquad Abs^2 = 39656 = 2^3 \cdot 4957$$

11.132

$$13263651833^4 - 13174759417^4 = 1^4 \cdot \left(13263651833^4 - 13174759417^4\right) =$$

$$= 5856702200^4 - 4341201760^4 = 40^4 \cdot \left(146417555^4 - 108530044^4\right) =$$

$$= 5663780600^4 - 3796020320^4 = 40^4 \cdot \left(141594515^4 - 94900508^4\right)$$

$$13263651833^4 + 4341201760^4 = 13174759417^4 + 5856702200^4 \quad (1)$$

$$13263651833^4 + 3796020320^4 = 13174759417^4 + 5663780600^4 \quad (1)$$

$$146417555^4 + 94900508^4 = 141594515^4 + 108530044^4 \quad (40)$$

$$x_1 = 13219205625 = 3^2 \cdot 5^4 \cdot 2350081$$

$$y_1 = 44446208 = 2^9 \cdot 47 \cdot 1847$$

$$x_1^2 + y_1^2 = 174749372821437219889 = 53^2 \cdot 73 \cdot 281 \cdot 602713 \cdot 5031809$$

$$x_2 = 5098951980 = 2^2 \cdot 3^2 \cdot 5 \cdot 47 \cdot 602713$$

$$y_2 = 757750220 = 2^2 \cdot 5 \cdot 73 \cdot 281 \cdot 1847$$

$$x_2^2 + y_2^2 = 26573496690255968800 = 2^5 \cdot 5^2 \cdot 53^2 \cdot 2350081 \cdot 5031809$$

$$x_3 = 933880140 = 2^2 \cdot 3^2 \cdot 5 \cdot 53^2 \cdot 1847$$

$$y_3 = 4729900460 = 2^2 \cdot 5 \cdot 47 \cdot 5031809$$

$$x_3^2 + y_3^2 = 23244090477394631200 = 2^5 \cdot 5^2 \cdot 73 \cdot 281 \cdot 602713 \cdot 2350081$$

$$\Pi = 2^9 \cdot 3^2 \cdot 5^4 \cdot 47 \cdot 53^2 \cdot 73 \cdot 281 \cdot 1847 \cdot 602713 \cdot 2350081 \cdot 5031809$$

$$r_0 = 45 = 3^2 \cdot 5$$

$$r_1 = 5 = 5$$

$$r_2 = 188 = 2^2 \cdot 47$$

$$r_3 = 7388 = 2^2 \cdot 1847$$

$$z_{23} = 6205 - 4500i \qquad Abs^2 = 58752025 = 5^2 \cdot 2350081$$

$$z_{31} = 773 + 72i \qquad Abs^2 = 602713 = 602713$$

$$z_{12} = -28 + 45i \qquad Abs^2 = 2809 = 53^2$$

$$z_{32} = 4 + 4i \qquad Abs^2 = 32 = 2^5$$

$$z_{13} = 8 + 143i \qquad Abs^2 = 20513 = 73 \cdot 281$$

$$z_{21} = 1460 + 1703i \qquad Abs^2 = 5031809 = 5031809$$

11.170

$$17086105784^4 - 17000413616^4 = 8^4 \cdot \left(2135763223^4 - 2125051702^4\right) =$$

$$= 7576487031^4 - 6322776183^4 = 3^4 \cdot \left(2525495677^4 - 2107592061^4\right) =$$

$$= 7209422664^4 - 5629812048^4 = 24^4 \cdot \left(300392611^4 - 234575502^4\right)$$

$$17086105784^4 + 6322776183^4 = 17000413616^4 + 7576487031^4 \tag{1}$$

$$2135763223^4 + 703726506^4 = 2125051702^4 + 901177833^4 \tag{8}$$

$$2525495677^4 + 1876604016^4 = 2403140888^4 + 2107592061^4 \tag{3}$$

$$x_1 = 17043259700 = 2^2 \cdot 5^2 \cdot 61 \cdot 89 \cdot 31393$$

$$y_1 = 42846084 = 2^2 \cdot 3^4 \cdot 132241$$

$$x_1^2 + y_1^2 = 290474536988558225056 = 2^5 \cdot 13 \cdot 197 \cdot 5477 \cdot 17041 \cdot 37976129$$

$$x_2 = 6949631607 = 3 \cdot 61 \cdot 37976129$$

$$y_2 = 626855424 = 2^9 \cdot 3 \cdot 13 \cdot 31393$$

$$x_2^2 + y_2^2 = 48690327195611622225 = 3^2 \cdot 5^2 \cdot 89 \cdot 197 \cdot 5477 \cdot 17041 \cdot 132241$$

$$x_3 = 789805308 = 2^2 \cdot 3 \cdot 61 \cdot 197 \cdot 5477$$

$$y_3 = 6419617356 = 2^2 \cdot 3 \cdot 17041 \cdot 31393$$

$$x_3^2 + y_3^2 = 41835279422001405600 = 2^5 \cdot 3^2 \cdot 5^2 \cdot 13 \cdot 89 \cdot 132241 \cdot 37976129$$

$$\Pi = 2^9 \cdot 3^4 \cdot 5^2 \cdot 13 \cdot 61 \cdot 89 \cdot 197 \cdot 5477 \cdot 17041 \cdot 31393 \cdot 132241 \cdot 37976129$$

$$r_0 = 61 = 61$$

$$r_1 = 125572 = 2^2 \cdot 31393$$

$$r_2 = 3 = 3$$

$$r_3 = 12 = 2^2 \cdot 3$$

$$z_{23} = 17 - 44i \qquad Abs^2 = 2225 = 5^2 \cdot 89$$

$$z_{31} = 2465 + 5648i \qquad Abs^2 = 37976129 = 37976129$$

$$z_{12} = -60 + 1037i \qquad Abs^2 = 1078969 = 197 \cdot 5477$$

$$z_{32} = 387 + 1020i \qquad Abs^2 = 1190169 = 3^2 \cdot 132241$$

$$z_{13} = 4 + 20i \qquad Abs^2 = 416 = 2^5 \cdot 13$$

$$z_{21} = 129 + 20i \qquad Abs^2 = 17041 = 17041$$

11.191

$$20120904088^4 - 18084586444^4 = 4^4 \cdot \left(5030226022^4 - 4521146611^4\right) =$$

$$= 15456866511^4 - 3435326607^4 = 3^4 \cdot \left(5152288837^4 - 1145108869^4\right) =$$

$$= 15447882696^4 - 1608018636^4 = 12^4 \cdot \left(1287323558^4 - 134001553^4\right)$$

$$20120904088^4 + 3435326607^4 = 18084586444^4 + 15456866511^4 \quad (1)$$

$$5030226022^4 + 402004659^4 = 4521146611^4 + 3861970674^4 \quad (4)$$

$$5152288837^4 + 536006212^4 = 5149294232^4 + 1145108869^4 \quad (3)$$

$$x_1 = 19102745266 = 2 \cdot 11 \cdot 17 \cdot 23 \cdot 29 \cdot 73 \cdot 1049$$

$$y_1 = 1018158822 = 2 \cdot 3^5 \cdot 37 \cdot 41 \cdot 1381$$

$$x_1^2 + y_1^2 = 365951524084501838440 = 2^3 \cdot 5 \cdot 601 \cdot 2137 \cdot 3037 \cdot 28433 \cdot 82493$$

$$x_2 = 9446096559 = 3 \cdot 37 \cdot 41 \cdot 73 \cdot 28433$$

$$y_2 = 6010769952 = 2^5 \cdot 3^2 \cdot 11 \cdot 23 \cdot 82493$$

$$x_2^2 + y_2^2 = 125358095617817722785 = 3^2 \cdot 5 \cdot 17 \cdot 29 \cdot 601 \cdot 1049 \cdot 1381 \cdot 2137 \cdot 3037$$

$$x_3 = 8527950666 = 2 \cdot 3^2 \cdot 73 \cdot 2137 \cdot 3037$$

$$y_3 = 6919932030 = 2 \cdot 3 \cdot 5 \cdot 11 \cdot 23 \cdot 37 \cdot 41 \cdot 601$$

$$x_3^2 + y_3^2 = 120611401861549764456 = 2^3 \cdot 3^2 \cdot 17 \cdot 29 \cdot 1049 \cdot 1381 \cdot 28433 \cdot 82493$$

$$\Pi = 2^5 \cdot 3^5 \cdot 5 \cdot 11 \cdot 17 \cdot 23 \cdot 29 \cdot 37 \cdot 41 \cdot 73 \cdot 601 \cdot 1049 \cdot 1381 \cdot 2137 \cdot 3037 \cdot 28433 \cdot 82493$$

$$r_0 = 73 = 73$$

$$r_1 = 506 = 2 \cdot 11 \cdot 23$$

$$r_2 = 4551 = 3 \cdot 37 \cdot 41$$

$$r_3 = 18 = 2 \cdot 3^2$$

$$z_{23} = 511 + 506i \qquad Abs^2 = 517157 = 17 \cdot 29 \cdot 1049$$

$$z_{31} = 152 + 73i \qquad Abs^2 = 28433 = 28433$$

$$z_{12} = 2263 + 1170i \qquad Abs^2 = 6490069 = 2137 \cdot 3037$$

$$z_{32} = 102 + 45i \qquad Abs^2 = 12429 = 3^2 \cdot 1381$$

$$z_{13} = 810 + 62i \qquad Abs^2 = 659944 = 2^3 \cdot 82493$$

$$z_{21} = 43 + 34i \qquad Abs^2 = 3005 = 5 \cdot 601$$

11.211

$$21780496124^4 - 20619272672^4 = 4^4 \cdot \left(5445124031^4 - 5154818168^4\right) =$$

$$= 14523305724^4 - 3762180096^4 = 12^4 \cdot \left(1210275477^4 - 313515008^4\right) =$$

$$= 14506930089^4 - 364677783^4 = 3^4 \cdot \left(4835643363^4 - 121559261^4\right)$$

$$5445124031^4 + 940545024^4 = 5154818168^4 + 3630826431^4 \tag{4}$$

$$21780496124^4 + 364677783^4 = 20619272672^4 + 14506930089^4 \tag{1}$$

$$4841101908^4 + 121559261^4 = 4835643363^4 + 1254060032^4 \tag{3}$$

$$x_1 = 21199884398 = 2 \cdot 7^2 \cdot 11 \cdot 19665941$$

$$y_1 = 580611726 = 2 \cdot 3^4 \cdot 29 \cdot 83 \cdot 1489$$

$$x_1^2 + y_1^2 = 449772208464932521480 = 2^3 \cdot 5 \cdot 13 \cdot 109 \cdot 409 \cdot 4177 \cdot 4729 \cdot 982213$$

$$x_2 = 9142742910 = 2 \cdot 3 \cdot 5 \cdot 7^2 \cdot 1489 \cdot 4177$$

$$y_2 = 5380562814 = 2 \cdot 3 \cdot 11 \cdot 83 \cdot 982213$$

$$x_2^2 + y_2^2 = 112540204113754866696 = 2^3 \cdot 3^2 \cdot 13 \cdot 29 \cdot 109 \cdot 409 \cdot 4729 \cdot 19665941$$

$$x_3 = 7071126153 = 3 \cdot 7^2 \cdot 13 \cdot 83 \cdot 109 \cdot 409$$

$$y_3 = 7435803936 = 2^5 \cdot 3 \cdot 11 \cdot 1489 \cdot 4729$$

$$x_3^2 + y_3^2 = 105292005246273671505 = 3^2 \cdot 5 \cdot 29 \cdot 4177 \cdot 982213 \cdot 19665941$$

$$\Pi = 2^5 \cdot 3^4 \cdot 5 \cdot 7^2 \cdot 11 \cdot 13 \cdot 29 \cdot 83 \cdot 109 \cdot 409 \cdot 1489 \cdot 4177 \cdot 4729 \cdot 982213 \cdot 19665941$$

$$r_0 = 49 = 7^2$$

$$r_1 = 22 = 2 \cdot 11$$

$$r_2 = 8934 = 2 \cdot 3 \cdot 1489$$

$$r_3 = 249 = 3 \cdot 83$$

$$z_{23} = 2750 + 3479i \qquad Abs^2 = 19665941 = 19665941$$

$$z_{31} = 137 + 46i \qquad Abs^2 = 20885 = 5 \cdot 4177$$

$$z_{12} = 687 + 328i \qquad Abs^2 = 579553 = 13 \cdot 109 \cdot 409$$

$$z_{32} = 6 + 15i \qquad Abs^2 = 261 = 3^2 \cdot 29$$

$$z_{13} = 742 + 657i \qquad Abs^2 = 982213 = 982213$$

$$z_{21} = 14 + 194i \qquad Abs^2 = 37832 = 2^3 \cdot 4729$$

11.220

$$22102334615^4 - 21995756695^4 = 5^4 \cdot \left(4420466923^4 - 4399151339^4\right) =$$

$$= 8221955680^4 - 346328240^4 = 80^4 \cdot \left(102774446^4 - 4329103^4\right) =$$

$$= 8221950368^4 - 225299632^4 = 16^4 \cdot \left(513871898^4 - 14081227^4\right)$$

$$4420466923^4 + 69265648^4 = 4399151339^4 + 1644391136^4 \tag{5}$$

$$22102334615^4 + 225299632^4 = 21995756695^4 + 8221950368^4 \tag{1}$$

$$513872230^4 + 14081227^4 = 513871898^4 + 21645515^4 \tag{16}$$

$$x_1 = 22049045655 = 3 \cdot 5 \cdot 7 \cdot 13 \cdot 709 \cdot 22783$$

$$y_1 = 53288960 = 2^{13} \cdot 5 \cdot 1301$$

$$x_1^2 + y_1^2 = 486163254009532260625 = 5^4 \cdot 29 \cdot 149 \cdot 1609 \cdot 21937 \cdot 5100169$$

$$x_2 = 4284141960 = 2^3 \cdot 3 \cdot 5 \cdot 7 \cdot 5100169$$

$$y_2 = 3937813720 = 2^3 \cdot 5 \cdot 29 \cdot 149 \cdot 22783$$

$$x_2^2 + y_2^2 = 33860249226852880000 = 2^7 \cdot 5^4 \cdot 13 \cdot 709 \cdot 1301 \cdot 1609 \cdot 21937$$

$$x_3 = 4223625000 = 2^3 \cdot 3 \cdot 5^6 \cdot 7 \cdot 1609$$

$$y_3 = 3998325368 = 2^3 \cdot 21937 \cdot 22783$$

$$x_3^2 + y_3^2 = 33825613889017335424 = 2^7 \cdot 13 \cdot 29 \cdot 149 \cdot 709 \cdot 1301 \cdot 5100169$$

$$\Pi = 2^{13} \cdot 3 \cdot 5^6 \cdot 7 \cdot 13 \cdot 29 \cdot 149 \cdot 709 \cdot 1301 \cdot 1609 \cdot 21937 \cdot 22783 \cdot 5100169$$

$$r_0 = 105 = 3 \cdot 5 \cdot 7$$

$$r_1 = 22783 = 22783$$

$$r_2 = 8 = 2^3$$

$$r_3 = 40 = 2^3 \cdot 5$$

$$z_{23} = 89 + 36i \qquad Abs^2 = 9217 = 13 \cdot 709$$

$$z_{31} = 2205 + 488i \qquad Abs^2 = 5100169 = 5100169$$

$$z_{12} = 540 + 845i \qquad Abs^2 = 1005625 = 5^4 \cdot 1609$$

$$z_{32} = 408 + 8i \qquad Abs^2 = 166528 = 2^7 \cdot 1301$$

$$z_{13} = 64 + 15i \qquad Abs^2 = 4321 = 29 \cdot 149$$

$$z_{21} = 124 + 81i \qquad Abs^2 = 21937 = 21937$$

11.313

$$34989594073^4 - 27736528793^4 = 1^4 \cdot \left(34989594073^4 - 27736528793^4\right) =$$

$$= 30983076524^4 - 10975390312^4 = 4^4 \cdot \left(7745769131^4 - 2743847578^4\right) =$$

$$= 30862292908^4 - 3871803896^4 = 4^4 \cdot \left(7715573227^4 - 967950974^4\right)$$

$$34989594073^4 + 10975390312^4 = 30983076524^4 + 27736528793^4 \quad (1)$$

$$34989594073^4 + 3871803896^4 = 30862292908^4 + 27736528793^4 \quad (1)$$

$$7745769131^4 + 967950974^4 = 7715573227^4 + 2743847578^4 \quad (4)$$

$$x_1 = 31363061433 = 3 \cdot 11 \cdot 29 \cdot 37 \cdot 885737$$

$$y_1 = 3626532640 = 2^5 \cdot 5 \cdot 457 \cdot 49597$$

$$x_1^2 + y_1^2 = 996793361439117383089 = 13 \cdot 17 \cdot 3677 \cdot 9073693 \cdot 135187069$$

$$x_2 = 20979233418 = 2 \cdot 3 \cdot 11 \cdot 13 \cdot 17 \cdot 29 \cdot 49597$$

$$y_2 = 10003843106 = 2 \cdot 37 \cdot 135187069$$

$$x_2^2 + y_2^2 = 540205111696391689960 = 2^3 \cdot 5 \cdot 457 \cdot 3677 \cdot 885737 \cdot 9073693$$

$$x_3 = 17367048402 = 2 \cdot 3 \cdot 11 \cdot 29 \cdot 9073693$$

$$y_3 = 13495244506 = 2 \cdot 37 \cdot 3677 \cdot 49597$$

$$x_3^2 + y_3^2 = 483735994474133937640 = 2^3 \cdot 5 \cdot 13 \cdot 17 \cdot 457 \cdot 885737 \cdot 135187069$$

$$\Pi = 2^5 \cdot 3 \cdot 5 \cdot 11 \cdot 13 \cdot 17 \cdot 29 \cdot 37 \cdot 457 \cdot 3677 \cdot 49597 \cdot 885737 \cdot 9073693 \cdot 135187069$$

$$r_0 = 957 = 3 \cdot 11 \cdot 29$$

$$r_1 = 37 = 37$$

$$r_2 = 99194 = 2 \cdot 49597$$

$$r_3 = 2 = 2$$

$$z_{23} = -16 - 941i \qquad Abs^2 = 885737 = 885737$$

$$z_{31} = -14 - 5i \qquad Abs^2 = 221 = 13 \cdot 17$$

$$z_{12} = -2978 + 453i \qquad Abs^2 = 9073693 = 9073693$$

$$z_{32} = 66 + 118i \qquad Abs^2 = 18280 = 2^3 \cdot 5 \cdot 457$$

$$z_{13} = 11595 + 862i \qquad Abs^2 = 135187069 = 135187069$$

$$z_{21} = 14 + 59i \qquad Abs^2 = 3677 = 3677$$

11.344

$$38965392920^4 - 30032395400^4 = 40^4 \cdot \left(974134823^4 - 750809885^4\right) =$$

$$= 36768943671^4 - 24076865079^4 = 3^4 \cdot \left(12256314557^4 - 8025621693^4\right) =$$

$$= 34953763560^4 - 5587975800^4 = 120^4 \cdot \left(291281363^4 - 46566465^4\right)$$

$$38965392920^4 + 24076865079^4 = 36768943671^4 + 30032395400^4 \tag{1}$$

$$974134823^4 + 139699395^4 = 873844089^4 + 750809885^4 \tag{40}$$

$$12256314557^4 + 1862658600^4 = 11651254520^4 + 8025621693^4 \tag{3}$$

$$x_1 = 34498894160 = 2^4 \cdot 5 \cdot 23 \cdot 29 \cdot 103 \cdot 6277$$

$$y_1 = 4466498760 = 2^3 \cdot 3^4 \cdot 5 \cdot 101 \cdot 13649$$

$$x_1^2 + y_1^2 = 1210123309435963643200 = 2^6 \cdot 5^2 \cdot 17 \cdot 97 \cdot 109 \cdot 353 \cdot 74201 \cdot 160649$$

$$x_2 = 30422904375 = 3 \cdot 5^4 \cdot 101 \cdot 160649$$

$$y_2 = 6346039296 = 2^{13} \cdot 3 \cdot 23 \cdot 103 \cdot 109$$

$$x_2^2 + y_2^2 = 965825325356770316241 = 3^2 \cdot 17 \cdot 29 \cdot 97 \cdot 353 \cdot 6277 \cdot 13649 \cdot 74201$$

$$x_3 = 14682893880 = 2^3 \cdot 3 \cdot 5 \cdot 17 \cdot 97 \cdot 74201$$

$$y_3 = 20270869680 = 2^4 \cdot 3 \cdot 5 \cdot 23 \cdot 101 \cdot 103 \cdot 353$$

$$x_3^2 + y_3^2 = 626495530274884756800 = 2^6 \cdot 3^2 \cdot 5^2 \cdot 29 \cdot 109 \cdot 6277 \cdot 13649 \cdot 160649$$

$$\Pi = 2^{13} \cdot 3^4 \cdot 5^4 \cdot 17 \cdot 23 \cdot 29 \cdot 97 \cdot 101 \cdot 103 \cdot 109 \cdot 353 \cdot 6277 \cdot 13649 \cdot 74201 \cdot 160649$$

$$r_0 = 5 = 5$$

$$r_1 = 37904 = 2^4 \cdot 23 \cdot 103$$

$$r_2 = 1515 = 3 \cdot 5 \cdot 101$$

$$r_3 = 24 = 2^3 \cdot 3$$

$$z_{23} = 188 + 383i \qquad Abs^2 = 182033 = 29 \cdot 6277$$

$$z_{31} = 1975 + 340i \qquad Abs^2 = 4016225 = 5^2 \cdot 160649$$

$$z_{12} = 10045 + 4632i \qquad Abs^2 = 122357449 = 17 \cdot 97 \cdot 74201$$

$$z_{32} = 204 + 285i \qquad Abs^2 = 122841 = 3^2 \cdot 13649$$

$$z_{13} = 80 + 24i \qquad Abs^2 = 6976 = 2^6 \cdot 109$$

$$z_{21} = 8 + 17i \qquad Abs^2 = 353 = 353$$

11.472

$$490591210234 - 453701989114 = 34 \cdot \left(163530403414 - 1512339963714\right) =$$

$$= 353478174164 - 87019219844 = 84 \cdot \left(44184771774 - 10877402484\right) =$$

$$= 353153260084 - 11726770564 = 244 \cdot \left(14714719174 - 488615444\right)$$

$$490591210234 + 87019219844 = 453701989114 + 353478174164 \quad (1)$$

$$163530403414 + 3908923524 = 151233996374 + 117717753364 \quad (3)$$

$$44184771774 + 1465846324 = 44144157514 + 10877402484 \quad (8)$$

$$x_1 = 47214659967 = 3 \cdot 29 \cdot 37 \cdot 313 \cdot 46861$$

$$y_1 = 1844461056 = 2^9 \cdot 3 \cdot 53 \cdot 139 \cdot 163$$

$$x_1^2 + y_1^2 = 2232626152386533076225 = 3^2 \cdot 5^2 \cdot 13 \cdot 853 \cdot 1613 \cdot 1697 \cdot 9721 \cdot 33629$$

$$x_2 = 22024869700 = 2^2 \cdot 5^2 \cdot 139 \cdot 163 \cdot 9721$$

$$y_2 = 13322947716 = 2^2 \cdot 3^4 \cdot 13 \cdot 37 \cdot 53 \cdot 1613$$

$$x_2^2 + y_2^2 = 662595821145247706656 = 2^5 \cdot 29 \cdot 313 \cdot 853 \cdot 1697 \cdot 33629 \cdot 46861$$

$$x_3 = 18244001532 = 2^2 \cdot 3 \cdot 53 \cdot 853 \cdot 33629$$

$$y_3 = 17071324476 = 2^2 \cdot 3 \cdot 37 \cdot 139 \cdot 163 \cdot 1697$$

$$x_3^2 + y_3^2 = 6242737112644950216 00 = 2^5 \cdot 3^2 \cdot 5^2 \cdot 13 \cdot 29 \cdot 313 \cdot 1613 \cdot 9721 \cdot 46861$$

$$\Pi = 2^9 \cdot 3^4 \cdot 5^2 \cdot 13 \cdot 29 \cdot 37 \cdot 53 \cdot 139 \cdot 163 \cdot 313 \cdot 853 \cdot 1613 \cdot 1697 \cdot 9721 \cdot 33629 \cdot 46861$$

$$r_0 = 1$$

$$r_1 = 111 = 3 \cdot 37$$

$$r_2 = 90628 = 2^2 \cdot 139 \cdot 163$$

$$r_3 = 636 = 2^2 \cdot 3 \cdot 53$$

$$z_{23} = 20624 - 89i \qquad Abs^2 = 425357297 = 29 \cdot 313 \cdot 46861$$

$$z_{31} = 108 + 481i \qquad Abs^2 = 243025 = 5^2 \cdot 9721$$

$$z_{12} = 5044 + 1801i \qquad Abs^2 = 28685537 = 853 \cdot 33629$$

$$z_{32} = 4 + 4i \qquad Abs^2 = 32 = 2^5$$

$$z_{13} = 420 + 111i \qquad Abs^2 = 188721 = 3^2 \cdot 13 \cdot 1613$$

$$z_{21} = 41 + 4i \qquad Abs^2 = 1697 = 1697$$

11.878

$$89324422108^4 - 86422335316^4 = 4^4 \cdot \left(22331105527^4 - 21605583829^4\right) =$$

$$= 58165600956^4 - 43460069388^4 = 12^4 \cdot \left(4847133413^4 - 3621672449^4\right) =$$

$$= 54659073993^4 - 31988175927^4 = 3^4 \cdot \left(18219691331^4 - 10662725309^4\right)$$

$$22331105527^4 + 10865017347^4 = 21605583829^4 + 14541400239^4 \quad (4)$$

$$89324422108^4 + 31988175927^4 = 86422335316^4 + 54659073993^4 \quad (1)$$

$$19388533652^4 + 10662725309^4 = 18219691331^4 + 14486689796^4 \quad (3)$$

$$x_1 = 87873378712 = 2^3 \cdot 7 \cdot 61 \cdot 25724057$$

$$y_1 = 1451043396 = 2^2 \cdot 3^5 \cdot 11 \cdot 113 \cdot 1201$$

$$x_1^2 + y_1^2 = 7723836213199649991760 = 2^4 \cdot 5 \cdot 13 \cdot 18397 \cdot 320521 \cdot 1259494337$$

$$x_2 = 50812835172 = 2^2 \cdot 3 \cdot 11 \cdot 1201 \cdot 320521$$

$$y_2 = 7352765784 = 2^3 \cdot 3^2 \cdot 7 \cdot 13 \cdot 61 \cdot 18397$$

$$x_2^2 + y_2^2 = 2636007382891201404240 = 2^4 \cdot 3^2 \cdot 5 \cdot 113 \cdot 25724057 \cdot 1259494337$$

$$x_3 = 11335449033 = 3^2 \cdot 1259494337$$

$$y_3 = 43323624960 = 2^9 \cdot 3 \cdot 5 \cdot 7 \cdot 11 \cdot 61 \cdot 1201$$

$$x_3^2 + y_3^2 = 2005428884454475636689 = 3^2 \cdot 13 \cdot 113 \cdot 18397 \cdot 320521 \cdot 25724057$$

$$\Pi = 2^9 \cdot 3^5 \cdot 5 \cdot 7 \cdot 11 \cdot 13 \cdot 61 \cdot 113 \cdot 1201 \cdot 18397 \cdot 320521 \cdot 25724057 \cdot 1259494337$$

$$r_0 = 1$$

$$r_1 = 3416 = 2^3 \cdot 7 \cdot 61$$

$$r_2 = 158532 = 2^2 \cdot 3 \cdot 11 \cdot 1201$$

$$r_3 = 9 = 3^2$$

$$z_{23} = 3749 + 3416i \qquad Abs^2 = 25724057 = 25724057$$

$$z_{31} = 565 - 36i \qquad Abs^2 = 320521 = 320521$$

$$z_{12} = 20836 + 28729i \qquad Abs^2 = 1259494337 = 1259494337$$

$$z_{32} = 21 + 24i \qquad Abs^2 = 1017 = 3^2 \cdot 113$$

$$z_{13} = 444 + 205i \qquad Abs^2 = 239161 = 13 \cdot 18397$$

$$z_{21} = 4 + 8i \qquad Abs^2 = 80 = 2^4 \cdot 5$$

11.892

$$102837195516^4 - 75665378448^4 = 132^4 \cdot \left(779069663^4 - 573222564^4\right) =$$

$$= 99135440943^4 - 64700482671^4 = 33^4 \cdot \left(3004104271^4 - 1960620687^4\right) =$$

$$= 94299979012^4 - 10843776848^4 = 4^4 \cdot \left(23574994753^4 - 2710944212^4\right)$$

$$3116278652^4 + 1960620687^4 = 3004104271^4 + 2292890256^4 \tag{33}$$

$$25709298879^4 + 2710944212^4 = 23574994753^4 + 18916344612^4 \tag{4}$$

$$99135440943^4 + 10843776848^4 = 94299979012^4 + 64700482671^4 \tag{1}$$

$$x_1 = 89251286982 = 2 \cdot 3 \cdot 11^2 \cdot 13 \cdot 1973 \cdot 4793$$

$$y_1 = 13585908534 = 2 \cdot 3 \cdot 11 \cdot 31 \cdot 1009 \cdot 6581$$

$$x_1^2 + y_1^2 = 8150369138637536697480 = 2^3 \cdot 3^2 \cdot 5 \cdot 11^2 \cdot 113 \cdot 577 \cdot 35837 \cdot 80076209$$

$$x_2 = 81917961807 = 3 \cdot 11 \cdot 31 \cdot 80076209$$

$$y_2 = 17217479136 = 2^5 \cdot 3 \cdot 11^2 \cdot 13 \cdot 113 \cdot 1009$$

$$x_2^2 + y_2^2 = 7006994054411706011745 = 3^2 \cdot 5 \cdot 11^2 \cdot 577 \cdot 1973 \cdot 4793 \cdot 6581 \cdot 35837$$

$$x_3 = 41728101082 = 2 \cdot 577 \cdot 1009 \cdot 35837$$

$$y_3 = 52571877930 = 2 \cdot 3^4 \cdot 5 \cdot 11^5 \cdot 13 \cdot 31$$

$$x_3^2 + y_3^2 = 4505036768996430655624 = 2^3 \cdot 113 \cdot 1973 \cdot 4793 \cdot 6581 \cdot 80076209$$

$$\Pi = 2^5 \cdot 3^4 \cdot 5 \cdot 11^5 \cdot 13 \cdot 31 \cdot 113 \cdot 577 \cdot 1009 \cdot 1973 \cdot 4793 \cdot 6581 \cdot 35837 \cdot 80076209$$

$$r_0 = 1$$

$$r_1 = 9438 = 2 \cdot 3 \cdot 11^2 \cdot 13$$

$$r_2 = 1023 = 3 \cdot 11 \cdot 31$$

$$r_3 = 2018 = 2 \cdot 1009$$

$$z_{23} = 2285 - 2058i \qquad Abs^2 = 9456589 = 1973 \cdot 4793$$

$$z_{31} = 8135 + 3728i \qquad Abs^2 = 80076209 = 80076209$$

$$z_{12} = -2018 + 4075i \qquad Abs^2 = 20677949 = 577 \cdot 35837$$

$$z_{32} = 70 + 41i \qquad Abs^2 = 6581 = 6581$$

$$z_{13} = 2 + 30i \qquad Abs^2 = 904 = 2^3 \cdot 113$$

$$z_{21} = 66 + 33i \qquad Abs^2 = 5445 = 3^2 \cdot 5 \cdot 11^2$$

12.113

$$116042431263^4 - 110920679199^4 = 33^4 \cdot \left(3516437311^4 - 3361232703^4\right) =$$

$$= 113159425368^4 - 107593877952^4 = 264^4 \cdot \left(428634187^4 - 407552568^4\right) =$$

$$= 86469128872^4 - 71372212544^4 = 8^4 \cdot \left(10808641109^4 - 8921526568^4\right)$$

$$3516437311^4 + 3260420544^4 = 3429073496^4 + 3361232703^4 \tag{33}$$

$$116042431263^4 + 71372212544^4 = 110920679199^4 + 86469128872^4 \tag{1}$$

$$14144928171^4 + 8921526568^4 = 13449234744^4 + 10808641109^4 \tag{8}$$

$$x_1 = 113481555231 = 3 \cdot 11 \cdot 127 \cdot 173 \cdot 281 \cdot 557$$

$$y_1 = 2560876032 = 2^9 \cdot 3 \cdot 11 \cdot 13 \cdot 89 \cdot 131$$

$$x_1^2 + y_1^2 = 12884621463697775528385 = 3^2 \cdot 5 \cdot 11^2 \cdot 113^2 \cdot 1276621 \cdot 145162657$$

$$x_2 = 110376651660 = 2^2 \cdot 3 \cdot 5 \cdot 11 \cdot 131 \cdot 1276621$$

$$y_2 = 2782773708 = 2^2 \cdot 3 \cdot 11 \cdot 13 \cdot 113^2 \cdot 127$$

$$x_2^2 + y_2^2 = 12190749061182916824864 = 2^5 \cdot 3^2 \cdot 11^2 \cdot 89 \cdot 173 \cdot 281 \cdot 557 \cdot 145162657$$

$$x_3 = 7548458164 = 2^2 \cdot 13 \cdot 145162657$$

$$y_3 = 78920670708 = 2^2 \cdot 3^4 \cdot 11^4 \cdot 127 \cdot 131$$

$$x_3^2 + y_3^2 = 6285451485654227472160 = 2^5 \cdot 5 \cdot 89 \cdot 113^2 \cdot 173 \cdot 281 \cdot 557 \cdot 1276621$$

$$\Pi = 2^9 \cdot 3^4 \cdot 5 \cdot 11^4 \cdot 13 \cdot 89 \cdot 113^2 \cdot 127 \cdot 131 \cdot 173 \cdot 281 \cdot 557 \cdot 1276621 \cdot 145162657$$

$$r_0 = 1$$

$$r_1 = 4191 = 3 \cdot 11 \cdot 127$$

$$r_2 = 17292 = 2^2 \cdot 3 \cdot 11 \cdot 131$$

$$r_3 = 52 = 2^2 \cdot 13$$

$$z_{23} = 929 - 5120i \qquad Abs^2 = 27077441 = 173 \cdot 281 \cdot 557$$

$$z_{31} = 2431 + 688i \qquad Abs^2 = 6383105 = 5 \cdot 1276621$$

$$z_{12} = -10944 + 5039i \qquad Abs^2 = 145162657 = 145162657$$

$$z_{32} = 52 + 12i \qquad Abs^2 = 2848 = 2^5 \cdot 89$$

$$z_{13} = 15 + 112i \qquad Abs^2 = 12769 = 113^2$$

$$z_{21} = 33 \qquad Abs^2 = 1089 = 3^2 \cdot 11^2$$

12.204

$$211807453336^4 - 197751314576^4 = 8^4 \cdot \left(26475931667^4 - 24718914322^4\right) =$$

$$= 157573595159^4 - 107412546583^4 = 59^4 \cdot \left(2670738901^4 - 1820551637^4\right) =$$

$$= 149626865512^4 - 64993362544^4 = 472^4 \cdot \left(317006071^4 - 137697802^4\right)$$

$$211807453336^4 + 107412546583^4 = 197751314576^4 + 157573595159^4 \quad (1)$$

$$26475931667^4 + 8124170318^4 = 24718914322^4 + 18703358189^4 \quad (8)$$

$$2670738901^4 + 1101582416^4 = 2536048568^4 + 1820551637^4 \quad (59)$$

$$x_1 = 204779383956 = 2^2 \cdot 3^3 \cdot 7 \cdot 1801 \cdot 150401$$

$$y_1 = 7028069380 = 2^2 \cdot 5 \cdot 29 \cdot 59^4$$

$$x_1^2 + y_1^2 = 41983989852608963794336 = 2^5 \cdot 13 \cdot 461 \cdot 19421 \cdot 948721 \cdot 11881721$$

$$x_2 = 132493070871 = 3^3 \cdot 7 \cdot 59 \cdot 11881721$$

$$y_2 = 25080524288 = 2^9 \cdot 59 \cdot 461 \cdot 1801$$

$$x_2^2 + y_2^2 = 181834465273887866055 85 = 5 \cdot 13 \cdot 29 \cdot 59^2 \cdot 19421 \cdot 150401 \cdot 948721$$

$$x_3 = 42316751484 = 2^2 \cdot 3^3 \cdot 7 \cdot 59 \cdot 948721$$

$$y_3 = 107310114028 = 2^2 \cdot 13 \cdot 59 \cdot 1801 \cdot 19421$$

$$x_3^2 + y_3^2 = 13306168028860978587040 = 2^5 \cdot 5 \cdot 29 \cdot 59^2 \cdot 461 \cdot 150401 \cdot 11881721$$

$$\Pi = 2^9 \cdot 3^3 \cdot 5 \cdot 7 \cdot 13 \cdot 29 \cdot 59^4 \cdot 461 \cdot 1801 \cdot 19421 \cdot 150401 \cdot 948721 \cdot 11881721$$

$$r_0 = 189 = 3^3 \cdot 7$$

$$r_1 = 7204 = 2^2 \cdot 1801$$

$$r_2 = 59 = 59$$

$$r_3 = 236 = 2^2 \cdot 59$$

$$z_{23} = 376 - 95i \qquad Abs^2 = 150401 = 150401$$

$$z_{31} = 3436 + 275i \qquad Abs^2 = 11881721 = 11881721$$

$$z_{12} = -236 + 945i \qquad Abs^2 = 948721 = 948721$$

$$z_{32} = 531 + 472i \qquad Abs^2 = 504745 = 5 \cdot 29 \cdot 59^2$$

$$z_{13} = 36 + 116i \qquad Abs^2 = 14752 = 2^5 \cdot 461$$

$$z_{21} = 308 + 397i \qquad Abs^2 = 252473 = 13 \cdot 19421$$

12.240

$$260298119144^4 - 221037548872^4 = 56^4 \cdot \left(4648180699^4 - 3947099087^4\right) =$$

$$= 221484081271^4 - 119323336823^4 = 1^4 \cdot \left(221484081271^4 - 119323336823^4\right) =$$

$$= 216685142296^4 - 30296362936^4 = 56^4 \cdot \left(3869377541^4 - 541006481^4\right)$$

$$260298119144^4 + 119323336823^4 = 221484081271^4 + 221037548872^4 \quad (1)$$

$$4648180699^4 + 541006481^4 = 3947099087^4 + 3869377541^4 \quad (56)$$

$$221484081271^4 + 30296362936^4 = 216685142296^4 + 119323336823^4 \quad (1)$$

$$x_1 = 240667834008 = 2^3 \cdot 3 \cdot 7 \cdot 61 \cdot 67 \cdot 409 \cdot 857$$

$$y_1 = 19630285136 = 2^4 \cdot 7^3 \cdot 11 \cdot 29 \cdot 11213$$

$$x_1^2 + y_1^2 = 58306354420622903882560 = 2^6 \cdot 5 \cdot 7^2 \cdot 13 \cdot 17 \cdot 41 \cdot 53 \cdot 277 \cdot 5717 \cdot 4889561$$

$$x_2 = 170403709047 = 3 \cdot 11 \cdot 13 \cdot 17 \cdot 61 \cdot 67 \cdot 5717$$

$$y_2 = 51080372224 = 2^{13} \cdot 7^6 \cdot 53$$

$$x_2^2 + y_2^2 = 31646628483517020354385 = 5 \cdot 29 \cdot 41 \cdot 277 \cdot 409 \cdot 857 \cdot 11213 \cdot 4889561$$

$$x_3 = 93194389680 = 2^4 \cdot 3 \cdot 5 \cdot 7^3 \cdot 61 \cdot 67 \cdot 277$$

$$y_3 = 123490752616 = 2^3 \cdot 7 \cdot 11 \cdot 41 \cdot 4889561$$

$$x_3^2 + y_3^2 = 2393516024949380134585 6 = 2^6 \cdot 7^2 \cdot 13 \cdot 17 \cdot 29 \cdot 53 \cdot 409 \cdot 857 \cdot 5717 \cdot 11213$$

$$\Pi = 2^{13} \cdot 3 \cdot 5 \cdot 7^6 \cdot 11 \cdot 13 \cdot 17 \cdot 29 \cdot 41 \cdot 53 \cdot 61 \cdot 67 \cdot 277 \cdot 409 \cdot 857 \cdot 5717 \cdot 11213 \cdot 4889561$$

$$r_0 = 12261 = 3 \cdot 61 \cdot 67$$

$$r_1 = 56 = 2^3 \cdot 7$$

$$r_2 = 11 = 11$$

$$r_3 = 5488 = 2^4 \cdot 7^3$$

$$z_{23} = 568 + 167i \qquad Abs^2 = 350513 = 409 \cdot 857$$

$$z_{31} = 1041 + 424i \qquad Abs^2 = 1263457 = 13 \cdot 17 \cdot 5717$$

$$z_{12} = 19 + 32i \qquad Abs^2 = 1385 = 5 \cdot 277$$

$$z_{32} = 544 + 171i \qquad Abs^2 = 325177 = 29 \cdot 11213$$

$$z_{13} = 392 + 112i \qquad Abs^2 = 166208 = 2^6 \cdot 7^2 \cdot 53$$

$$z_{21} = 13320 + 4801i \qquad Abs^2 = 200472001 = 41 \cdot 4889561$$

12.920

$$965988448960^4 - 875248595860^4 = 20^4 \cdot \left(48299422448^4 - 43762429793^4\right) =$$

$$= 730352274720^4 - 159090343020^4 = 60^4 \cdot \left(12172537912^4 - 2651505717^4\right) =$$

$$= 729956352633^4 - 70072978617^4 = 3^4 \cdot \left(243318784211^4 - 23357659539^4\right)$$

$$48299422448^4 + 7954517151^4 = 43762429793^4 + 36517613736^4 \tag{20}$$

$$965988448960^4 + 70072978617^4 = 875248595860^4 + 729956352633^4 \tag{1}$$

$$243450758240^4 + 23357659539^4 = 243318784211^4 + 53030114340^4 \tag{3}$$

$$x_1 = 920618522410 = 2 \cdot 5 \cdot 17 \cdot 29 \cdot 109 \cdot 113 \cdot 15161$$

$$y_1 = 45369926550 = 2 \cdot 3^4 \cdot 5^2 \cdot 13 \cdot 53 \cdot 71 \cdot 229$$

$$x_1^2 + y_1^2 = 849596894039524067110600 = 2^3 \cdot 5^2 \cdot 61 \cdot 5801 \cdot 7817 \cdot 600961 \cdot 2555429$$

$$x_2 = 444721308870 = 2 \cdot 3 \cdot 5 \cdot 5801 \cdot 2555429$$

$$y_2 = 285630965850 = 2 \cdot 3 \cdot 5^2 \cdot 29 \cdot 61 \cdot 71 \cdot 15161$$

$$x_2^2 + y_2^2 = 279362091215449806899400 = 2^3 \cdot 3^2 \cdot 5^2 \cdot 13 \cdot 17 \cdot 53 \cdot 109 \cdot 113 \cdot 229 \cdot 7817 \cdot 600961$$

$$x_3 = 400014665625 = 3 \cdot 5^5 \cdot 71 \cdot 600961$$

$$y_3 = 329941687008 = 2^5 \cdot 3 \cdot 29 \cdot 7817 \cdot 15161$$

$$x_3^2 + y_3^2 = 2688732495407655926326 89 = 3^2 \cdot 13 \cdot 17 \cdot 53 \cdot 61 \cdot 109 \cdot 113 \cdot 229 \cdot 5801 \cdot 2555429$$

$$\Pi = 2^5 \cdot 3^4 \cdot 5^5 \cdot 13 \cdot 17 \cdot 29 \cdot 53 \cdot 61 \cdot 71 \cdot 109 \cdot 113 \cdot 229 \cdot 5801 \cdot 7817 \cdot 15161 \cdot 600961 \cdot 2555429$$

$$r_0 = 5 = 5$$

$$r_1 = 879338 = 2 \cdot 29 \cdot 15161$$

$$r_2 = 6 = 2 \cdot 3$$

$$r_3 = 5325 = 3 \cdot 5^2 \cdot 71$$

$$z_{23} = 358 - 285i \qquad Abs^2 = 209389 = 17 \cdot 109 \cdot 113$$

$$z_{31} = -58398 + 106835i \qquad Abs^2 = 14824043629 = 5801 \cdot 2555429$$

$$z_{12} = 3700 + 1155i \qquad Abs^2 = 15024025 = 5^2 \cdot 600961$$

$$z_{32} = 210 + 1173i \qquad Abs^2 = 1420029 = 3^2 \cdot 13 \cdot 53 \cdot 229$$

$$z_{13} = 5 + 6i \qquad Abs^2 = 61 = 61$$

$$z_{21} = 250 + 6i \qquad Abs^2 = 62536 = 2^3 \cdot 7817$$

13.118

$$1238851141823^4 - 1134852128959^4 = 1^4 \cdot \left(1238851141823^4 - 1134852128959^4\right) =$$

$$= 927066366152^4 - 452304309688^4 = 136^4 \cdot \left(6816664457^4 - 3325766983^4\right) =$$

$$= 913974498872^4 - 177979665224^4 = 136^4 \cdot \left(6720400727^4 - 1308674009^4\right)$$

$$1238851141823^4 + 452304309688^4 = 1134852128959^4 + 927066366152^4 \quad (1)$$

$$1238851141823^4 + 177979665224^4 = 1134852128959^4 + 913974498872^4 \quad (1)$$

$$6816664457^4 + 1308674009^4 = 6720400727^4 + 3325766983^4 \quad (136)$$

$$x_1 = 1186851635391 = 3 \cdot 23 \cdot 101 \cdot 787 \cdot 216397$$

$$y_1 = 51999506432 = 2^{15} \cdot 17^4 \cdot 19$$

$$x_1^2 + y_1^2 = 14113207530994628130935 25 = 5 \cdot 61 \cdot 113 \cdot 197 \cdot 1033 \cdot 10453 \cdot 10477 \cdot 1837397$$

$$x_2 = 689685337920 = 2^6 \cdot 3 \cdot 5 \cdot 17 \cdot 23 \cdot 1837397$$

$$y_2 = 237381028232 = 2^3 \cdot 17 \cdot 19 \cdot 113 \cdot 787 \cdot 1033$$

$$x_2^2 + y_2^2 = 532015617906306170972224 = 2^6 \cdot 17^2 \cdot 61 \cdot 101 \cdot 197 \cdot 10453 \cdot 10477 \cdot 216397$$

$$x_3 = 367997416824 = 2^3 \cdot 3 \cdot 17 \cdot 19 \cdot 23 \cdot 197 \cdot 10477$$

$$y_3 = 545977082048 = 2^6 \cdot 17 \cdot 61 \cdot 787 \cdot 10453$$

$$x_3^2 + y_3^2 = 433513072910785322121280 = 2^6 \cdot 5 \cdot 17^2 \cdot 101 \cdot 113 \cdot 1033 \cdot 216397 \cdot 1837397$$

$$\Pi = 2^{15} \cdot 3 \cdot 5 \cdot 17^4 \cdot 19 \cdot 23 \cdot 61 \cdot 101 \cdot 113 \cdot 197 \cdot 787 \cdot 1033 \cdot 10453 \cdot 10477 \cdot 216397 \cdot 1837397$$

$$r_0 = 69 = 3 \cdot 23$$

$$r_1 = 787 = 787$$

$$r_2 = 1088 = 2^6 \cdot 17$$

$$r_3 = 2584 = 2^3 \cdot 17 \cdot 19$$

$$z_{23} = 4624 + 689i \qquad Abs^2 = 21856097 = 101 \cdot 216397$$

$$z_{31} = 2829 - 1088i \qquad Abs^2 = 9186985 = 5 \cdot 1837397$$

$$z_{12} = -463 + 1360i \qquad Abs^2 = 2063969 = 197 \cdot 10477$$

$$z_{32} = 136 \qquad Abs^2 = 18496 = 2^6 \cdot 17^2$$

$$z_{13} = 235 + 248i \qquad Abs^2 = 116729 = 113 \cdot 1033$$

$$z_{21} = 552 + 577i \qquad Abs^2 = 637633 = 61 \cdot 10453$$

13.356

$$3596524909665^4 - 3536316889185^4 = 15^4 \cdot \left(239768327311^4 - 235754459279^4\right) =$$

$$= 1825585950720^4 - 652953001080^4 = 120^4 \cdot \left(15213216256^4 - 5441275009^4\right) =$$

$$= 1819306787072^4 - 415284862072^4 = 8^4 \cdot \left(227413348384^4 - 51910607759^4\right)$$

$$239768327311^4 + 43530200072^4 = 235754459279^4 + 121705730048^4 \tag{15}$$

$$3596524909665^4 + 415284862072^4 = 3536316889185^4 + 1819306787072^4 \tag{1}$$

$$228198243840^4 + 51910607759^4 = 227413348384^4 + 81619125135^4 \tag{8}$$

$$x_1 = 3566420899425 = 3^2 \cdot 5^2 \cdot 15850759553$$

$$y_1 = 30104010240 = 2^9 \cdot 3 \cdot 5 \cdot 229 \cdot 17117$$

$$x_1^2 + y_1^2 = 1272026428328795599018822 5 = 3^2 \cdot 5^2 \cdot 17 \cdot 193 \cdot 190297 \cdot 5019569 \cdot 18038857$$

$$x_2 = 1239269475900 = 2^2 \cdot 3 \cdot 5^2 \cdot 229 \cdot 18038857$$

$$y_2 = 586316474820 = 2^2 \cdot 3^2 \cdot 5 \cdot 17117 \cdot 190297$$

$$x_2^2 + y_2^2 = 1879555842542812374842400 = 2^5 \cdot 3^2 \cdot 5^2 \cdot 17 \cdot 193 \cdot 5019569 \cdot 15850759553$$

$$x_3 = 702010962500 = 2^2 \cdot 5^5 \cdot 17 \cdot 193 \cdot 17117$$

$$y_3 = 1117295824572 = 2^2 \cdot 3^5 \cdot 229 \cdot 5019569$$

$$x_3^2 + y_3^2 = 1741169351076201805233184 = 2^5 \cdot 190297 \cdot 18038857 \cdot 15850759553$$

$$\Pi = 2^9 \cdot 3^5 \cdot 5^5 \cdot 17 \cdot 193 \cdot 229 \cdot 17117 \cdot 190297 \cdot 5019569 \cdot 18038857 \cdot 15850759553$$

$$r_0 = 25 = 5^2$$

$$r_1 = 9 = 3^2$$

$$r_2 = 2748 = 2^2 \cdot 3 \cdot 229$$

$$r_3 = 342340 = 2^2 \cdot 5 \cdot 17117$$

$$z_{23} = 125633 + 8192i \qquad Abs^2 = 15850759553 = 15850759553$$

$$z_{31} = 3069 + 2936i \qquad Abs^2 = 18038857 = 18038857$$

$$z_{12} = 200 + 205i \qquad Abs^2 = 82025 = 5^2 \cdot 17 \cdot 193$$

$$z_{32} = 4 + 4i \qquad Abs^2 = 32 = 2^5$$

$$z_{13} = 379 + 216i \qquad Abs^2 = 190297 = 190297$$

$$z_{21} = 5835 + 3336i \qquad Abs^2 = 45176121 = 3^2 \cdot 5019569$$

14.205

$$206258917110564 - 205494687269684 = 84 \cdot \left(25782364638824 - 25686835908714\right) =$$

$$= 74774229725924 - 46276671894324 = 84 \cdot \left(9346778715744 - 5784583986794\right) =$$

$$= 73776846004874 - 41447967327614 = 14 \cdot \left(73776846004874 - 41447967327614\right)$$

$$25782364638824 + 5784583986794 = 25686835908714 + 9346778715744 \quad (8)$$

$$206258917110564 + 41447967327614 = 205494687269684 + 73776846004874 \quad (1)$$

$$74774229725924 + 41447967327614 = 73776846004874 + 46276671894324 \quad (1)$$

$$x_1 = 20587680219012 = 2^2 \cdot 3 \cdot 263 \cdot 743 \cdot 2081 \cdot 4219$$

$$y_1 = 38211492044 = 2^2 \cdot 11 \cdot 53 \cdot 1777 \cdot 9221$$

$$x_1^2 + y_1^2 = 423854036918422220961554080 = 2^5 \cdot 5 \cdot 13 \cdot 61 \cdot 449 \cdot 10141 \cdot 1080757 \cdot 678840857$$

$$x_2 = 6052545081012 = 2^2 \cdot 3 \cdot 743 \cdot 678840857$$

$$y_2 = 1424877891580 = 2^2 \cdot 5 \cdot 11 \cdot 13 \cdot 263 \cdot 449 \cdot 4219$$

$$x_2^2 + y_2^2 = 38663578963596023877840544 = 2^5 \cdot 53 \cdot 61 \cdot 1777 \cdot 2081 \cdot 9221 \cdot 10141 \cdot 1080757$$

$$x_3 = 1616443933863 = 3 \cdot 11 \cdot 61 \cdot 743 \cdot 1080757$$

$$y_3 = 5761240666624 = 2^9 \cdot 263 \cdot 4219 \cdot 10141$$

$$x_3^2 + y_3^2 = 358047850100846426256601 45 = 5 \cdot 13 \cdot 53 \cdot 449 \cdot 1777 \cdot 2081 \cdot 9221 \cdot 678840857$$

$$\Pi = 2^9 \cdot 3 \cdot 5 \cdot 11 \cdot 13 \cdot 53 \cdot 61 \cdot 263 \cdot 449 \cdot 743 \cdot 1777 \cdot 2081 \cdot 4219 \cdot 9221 \cdot 10141 \cdot 1080757 \cdot 678840857$$

$$r_0 = 2229 = 3 \cdot 743$$

$$r_1 = 4438388 = 2^2 \cdot 263 \cdot 4219$$

$$r_2 = 4 = 2^2$$

$$r_3 = 11 = 11$$

$$z_{23} = 20 - 41i \qquad Abs^2 = 2081 = 2081$$

$$z_{31} = 5821 + 25396i \qquad Abs^2 = 678840857 = 678840857$$

$$z_{12} = 1679 + 7944i \qquad Abs^2 = 65926177 = 61 \cdot 1080757$$

$$z_{32} = 7500 + 28499i \qquad Abs^2 = 868443001 = 53 \cdot 1777 \cdot 9221$$

$$z_{13} = 36 + 167i \qquad Abs^2 = 29185 = 5 \cdot 13 \cdot 449$$

$$z_{21} = 556 + 124i \qquad Abs^2 = 324512 = 2^5 \cdot 10141$$