Psychodeliczna sztuka w geometrii

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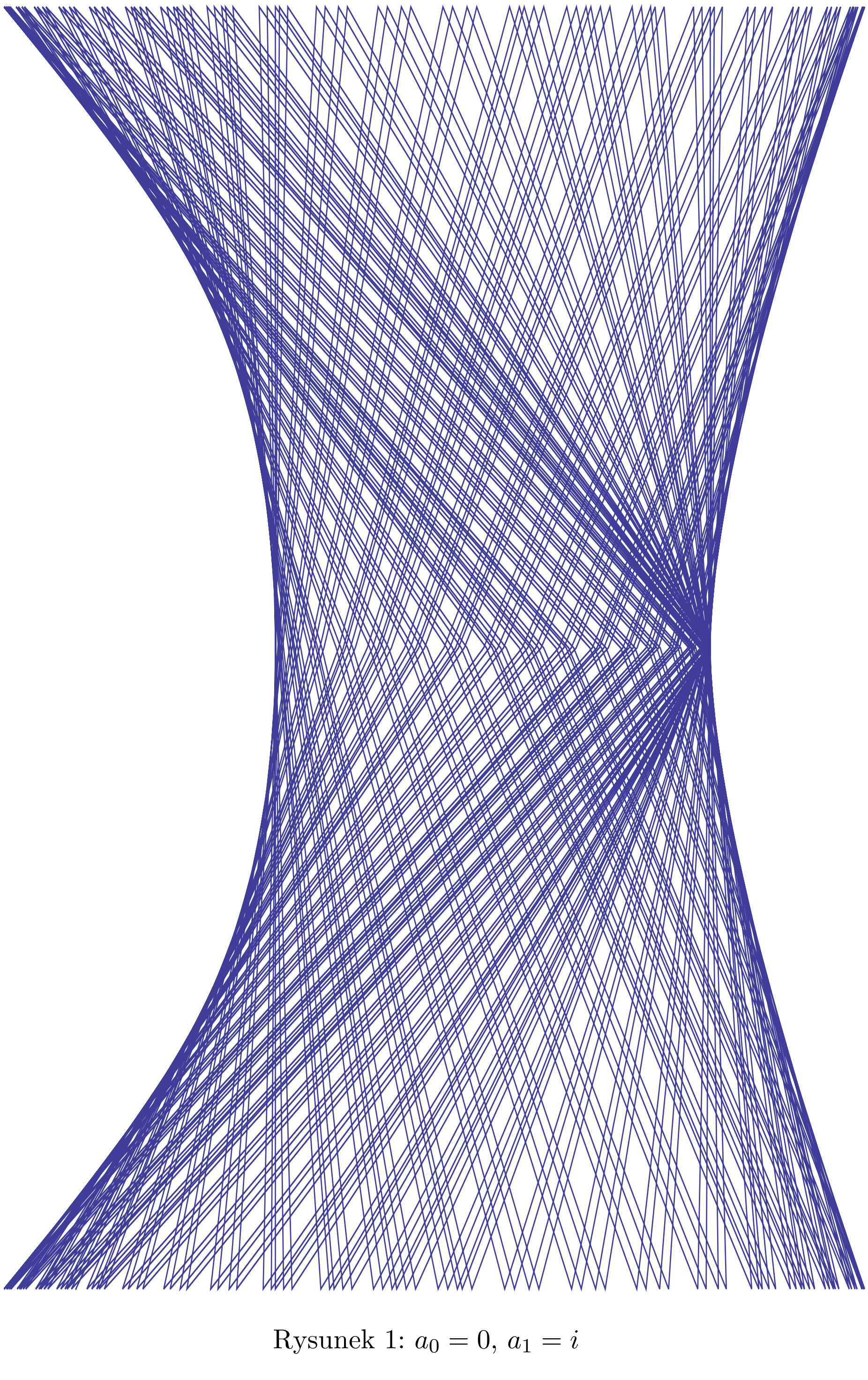
Psychodeliczna sztuka w geometrii położenia elementów ciągu

$$a_{n+1} = |a_n| - a_{n-1}, \quad n \geqslant 1,$$

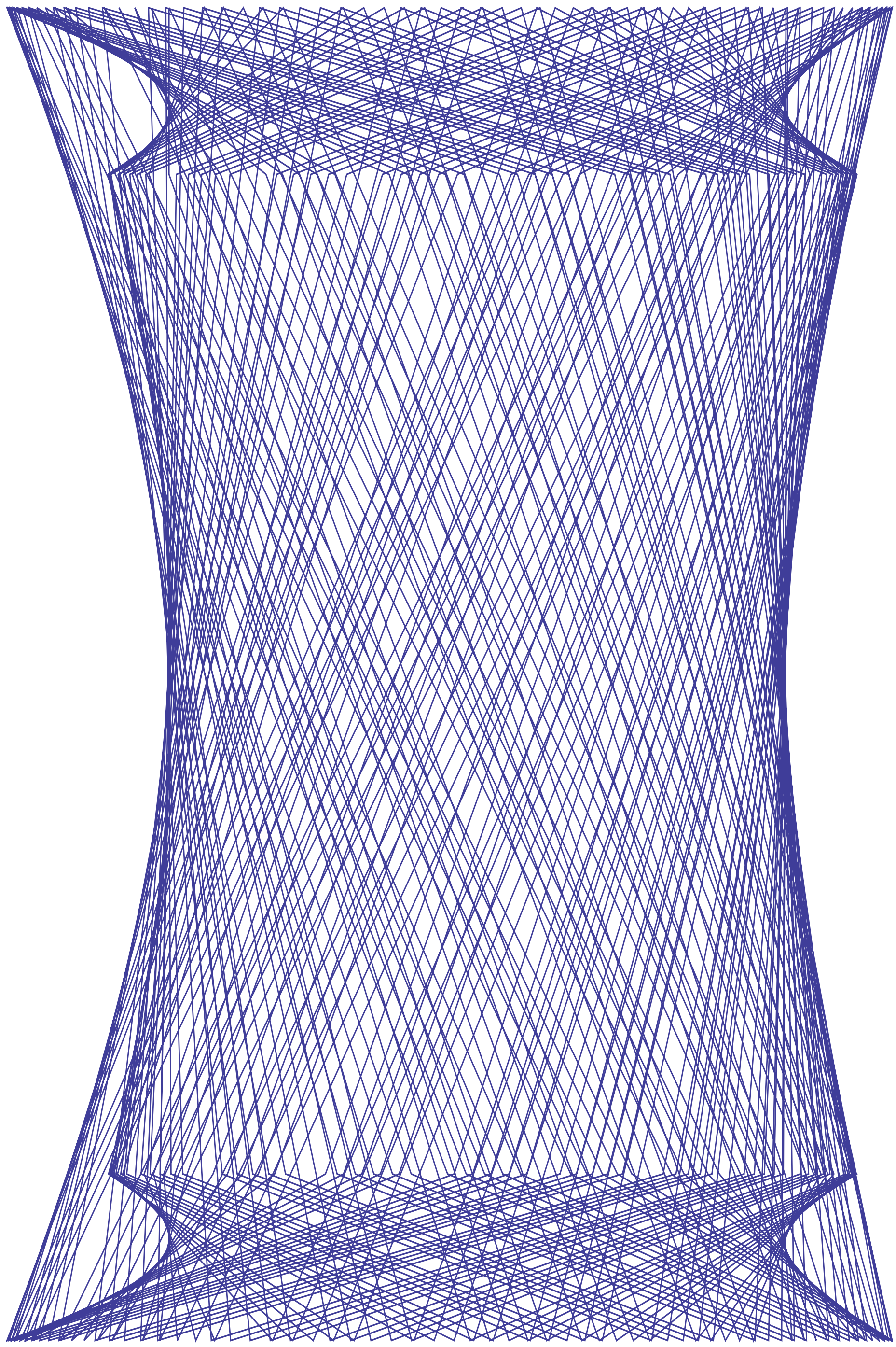
gdy a_0 oraz a_1 są liczbami zespolonymi, które nie są równocześnie liczbami rzeczywistymi. Kolejne elementy ciągu $\{a_n\}$ na płaszczyźnie Gaussa połączone są odcinkami.

Otrzymane figury nie mają osi symetrii, a wyglądają jak figury symetryczne – jednak to tylko złudzenie!

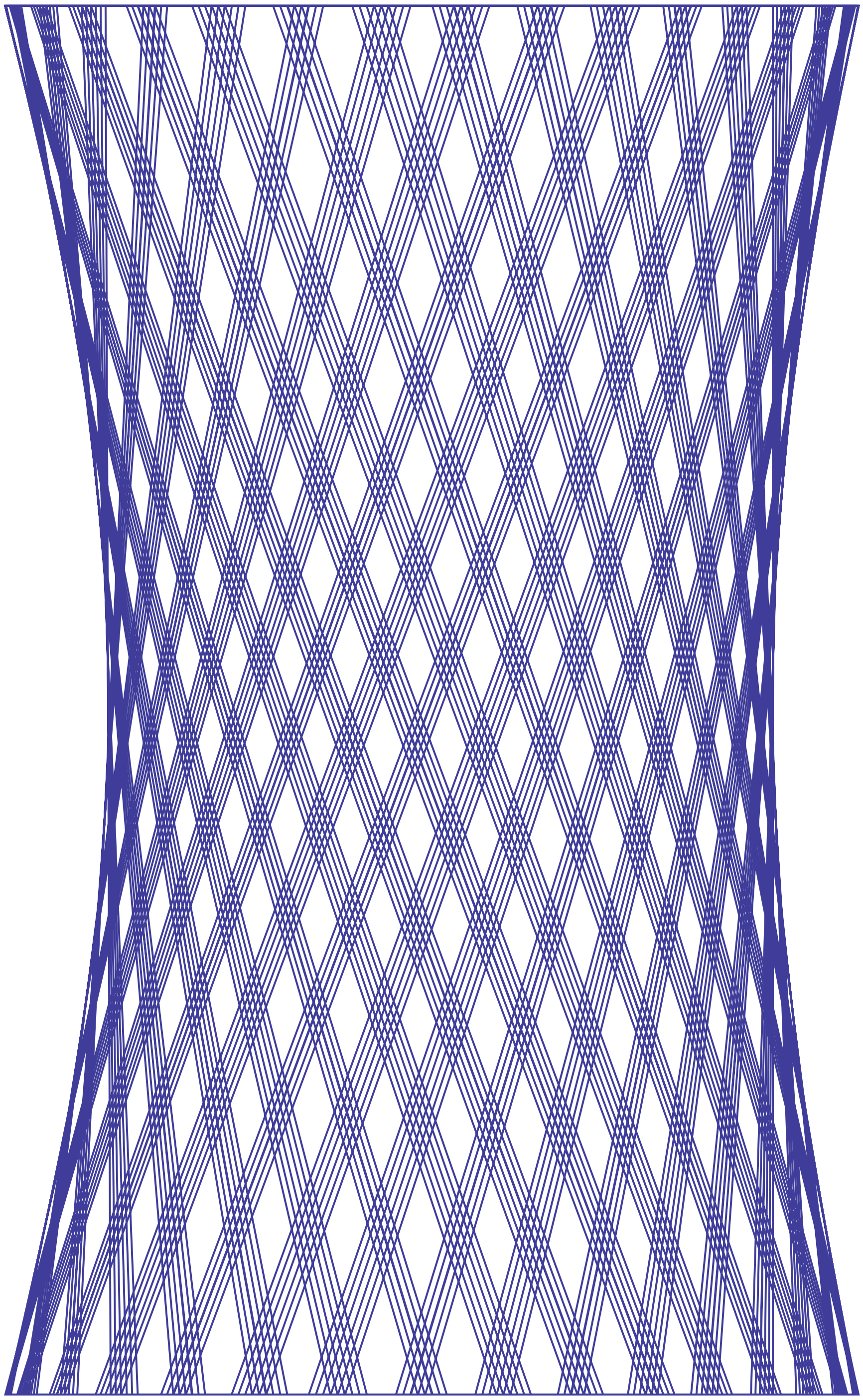
Więcej faktów o podanym ciągu można znaleźć w pracy: H. Hanslik, E. Hetmaniok, I. Sobstyl, M. Pleszczyński, R. Wituła: *Orbits of the Kaprekar's transformations – some introductory facts*, Zeszyty Naukowe Politechniki Śląskiej, Seria: Matematyka Stosowana, w druku (praca będzie dostępna online).



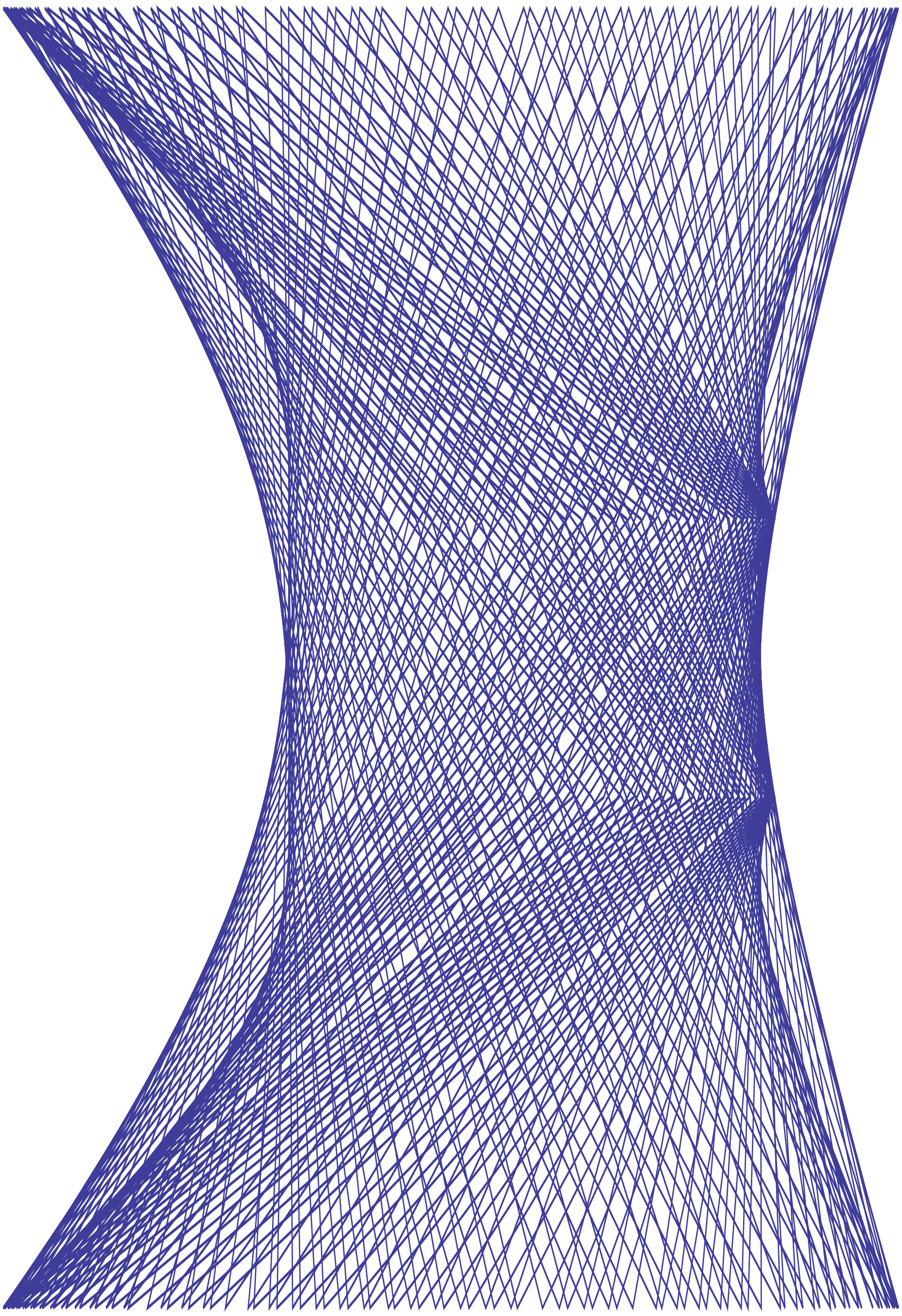
Rysunek 1: $a_0 = 0$, $a_1 = i$



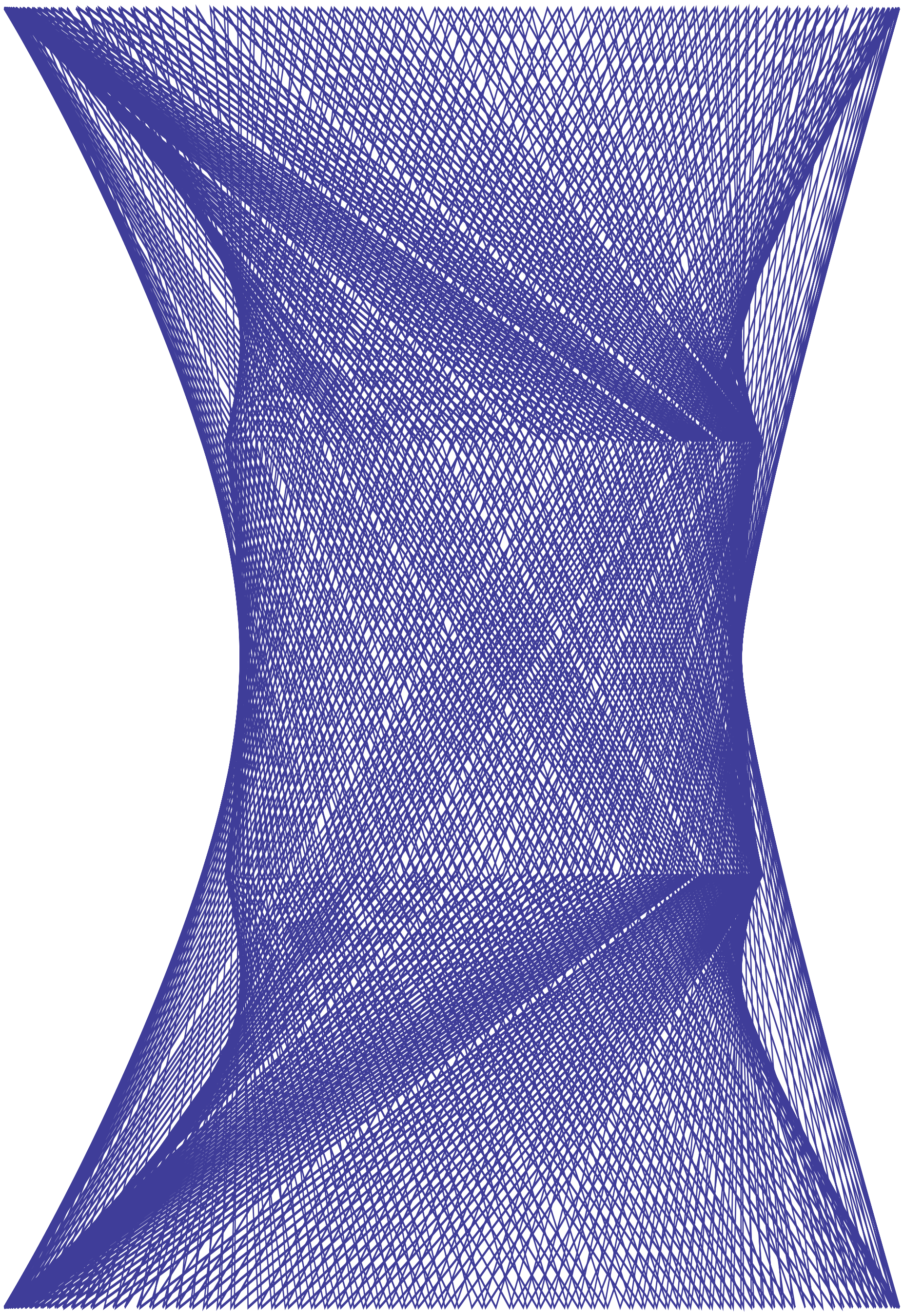
Rysunek 2: $a_0 = 5 - 3i$, $a_1 = 3 - 4i$



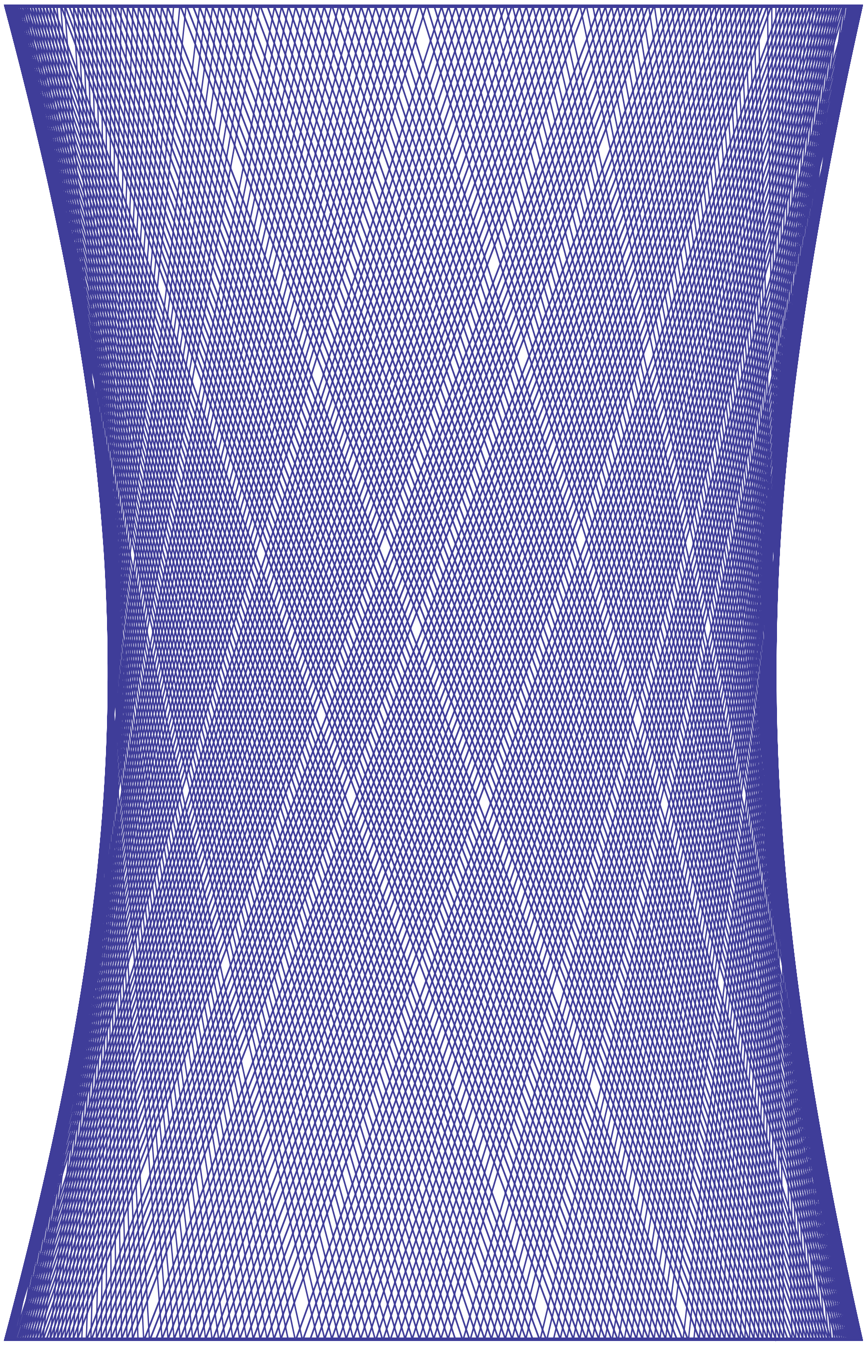
Rysunek 3: $a_0 = 1 + i$, $a_1 = 1 - i$



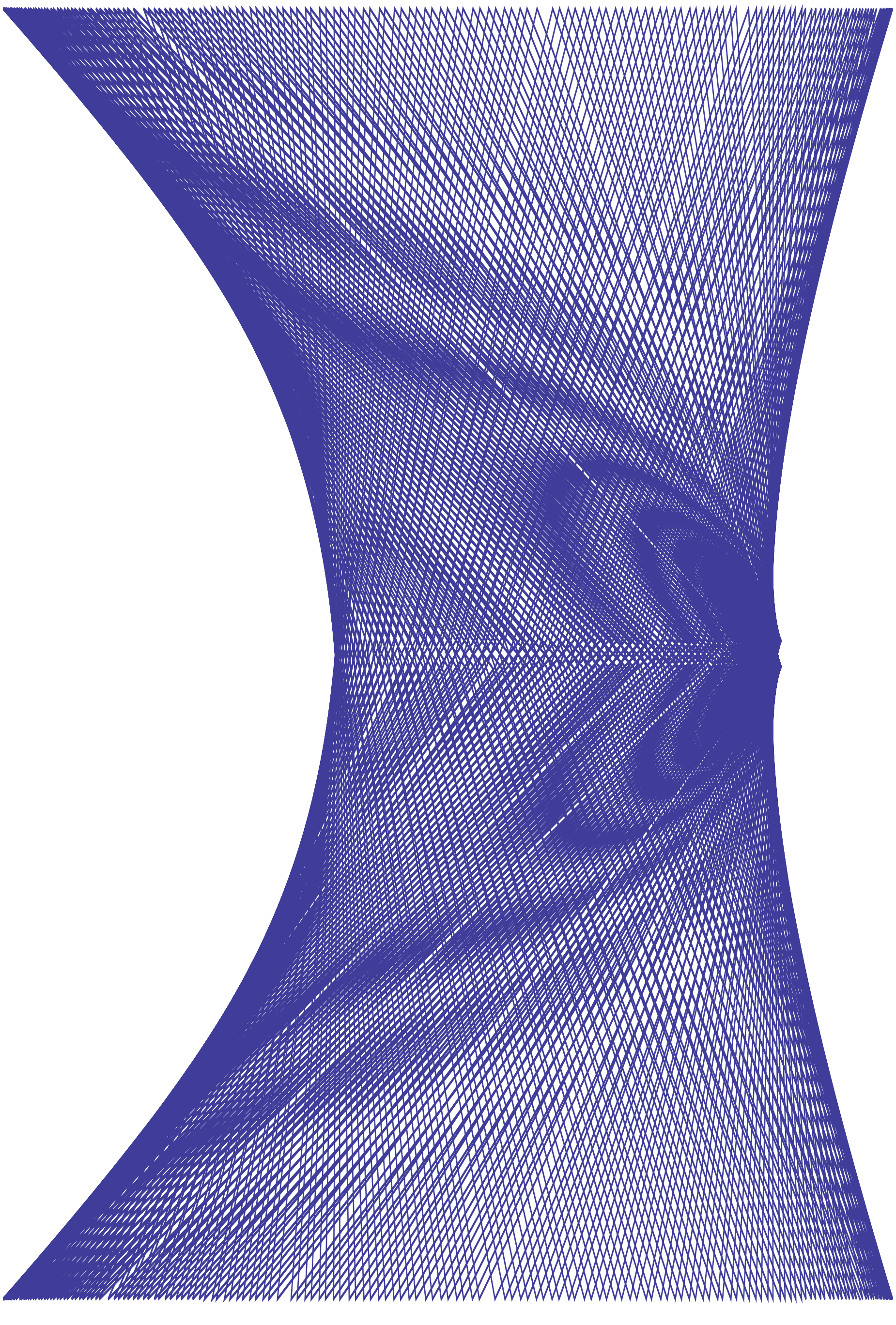
Rysunek 4: $a_0 = 1 + i$, $a_1 = 3 - 14i$



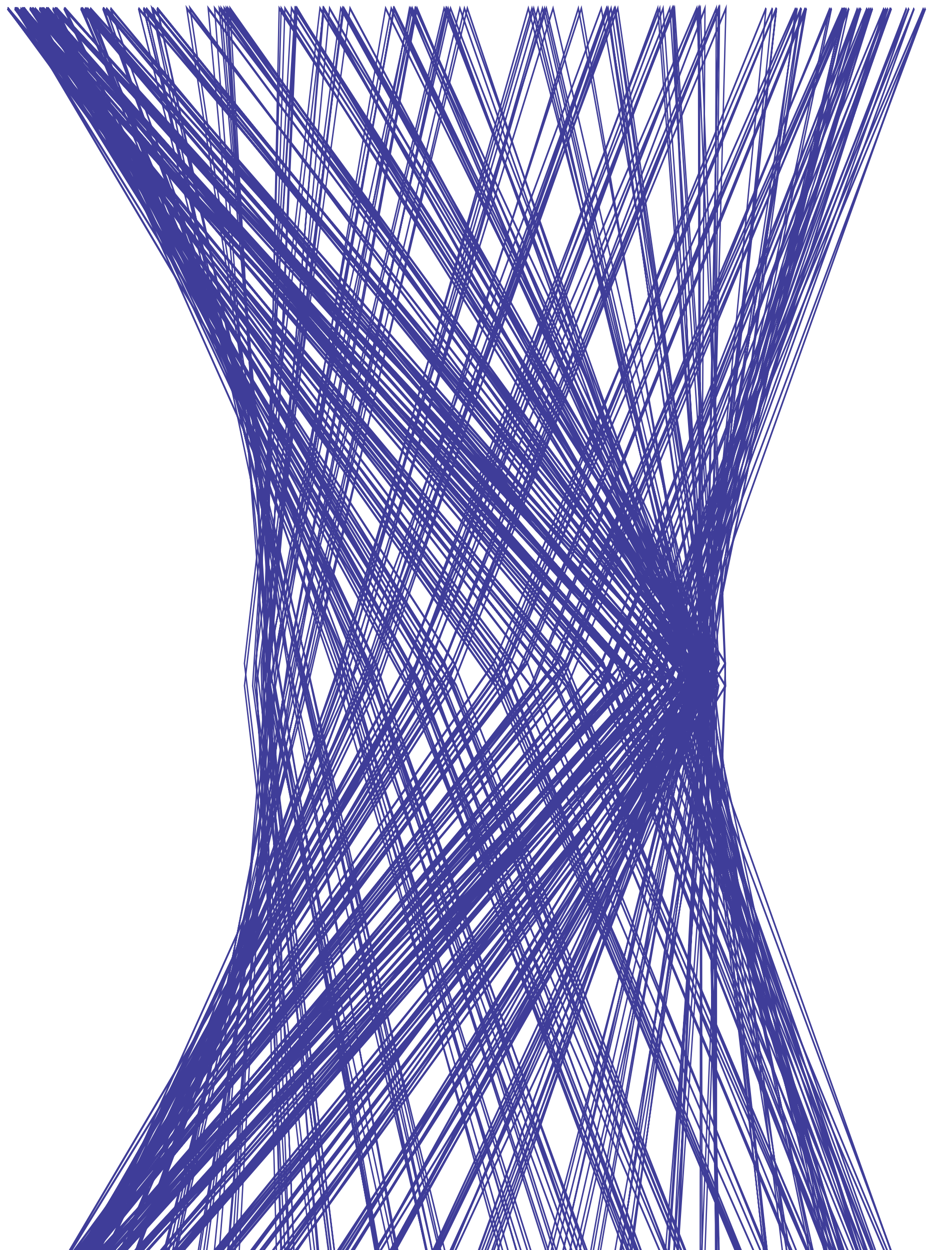
Rysunek 5: $a_0 = 1 + i$, $a_1 = 3 - 3i$



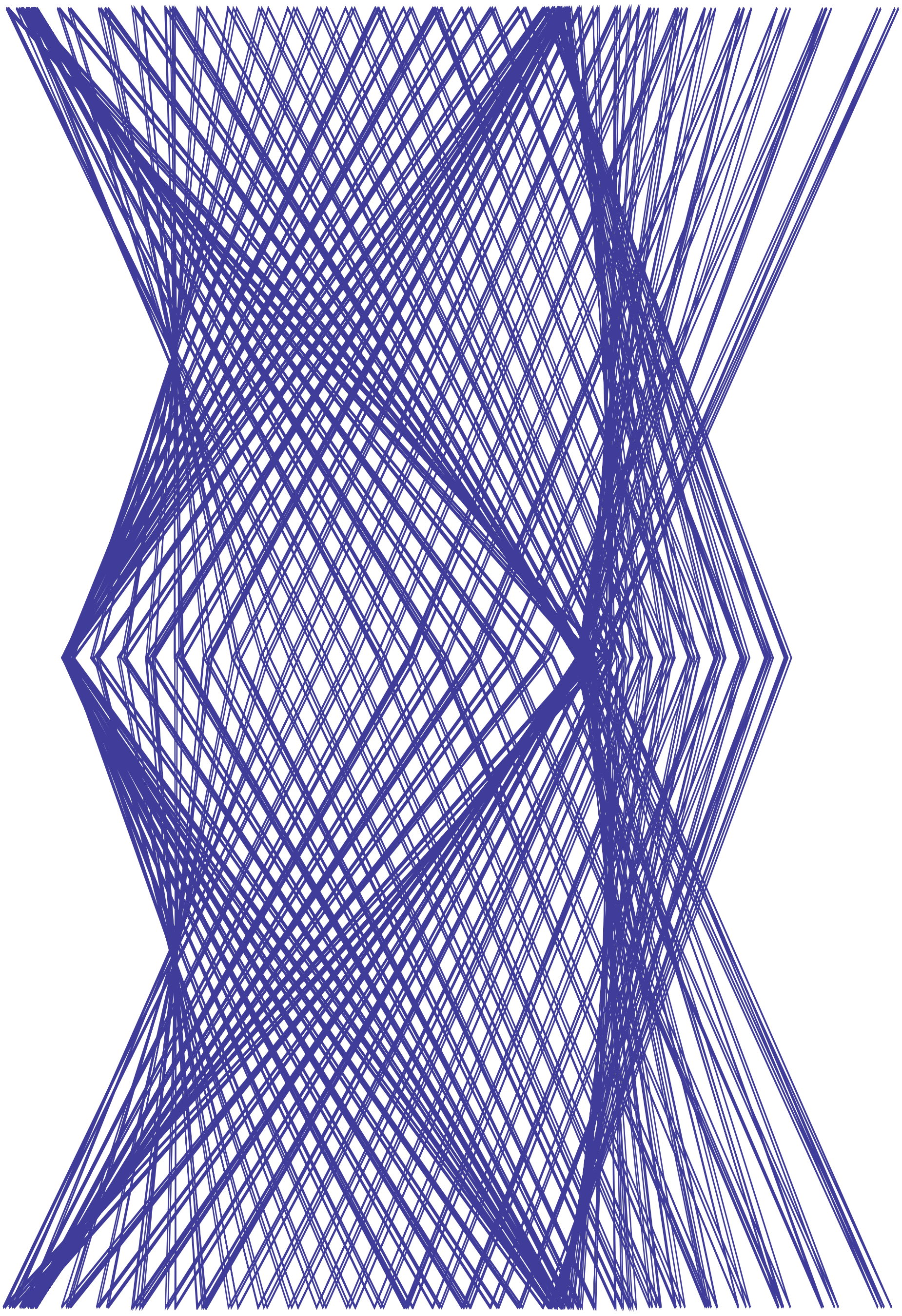
Rysunek 6: $a_0 = 3 - 3i$, $a_1 = 3 - 3i$



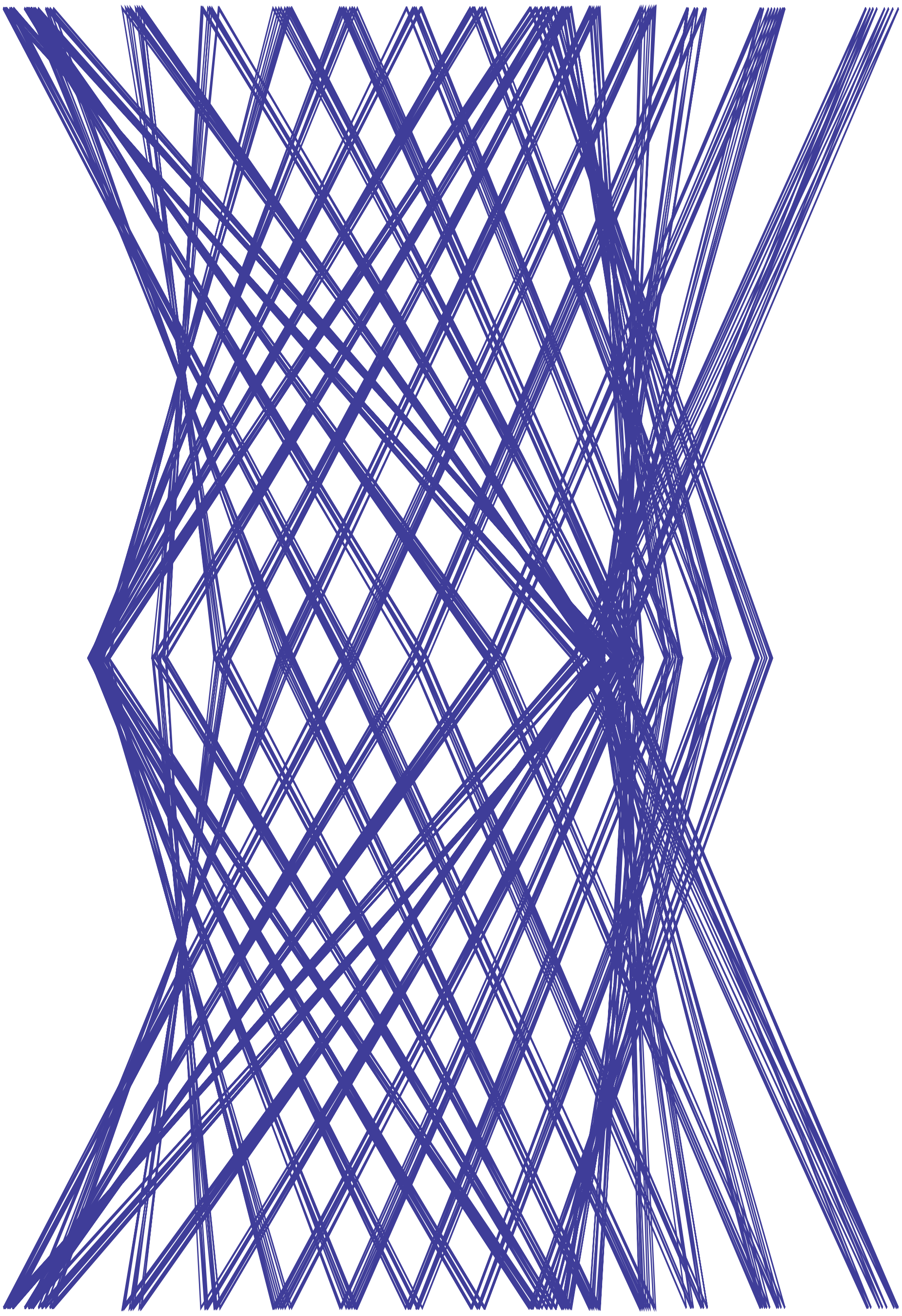
Rysunek 7: $a_0 = 50 - 50i$, $a_1 = 30 - i$



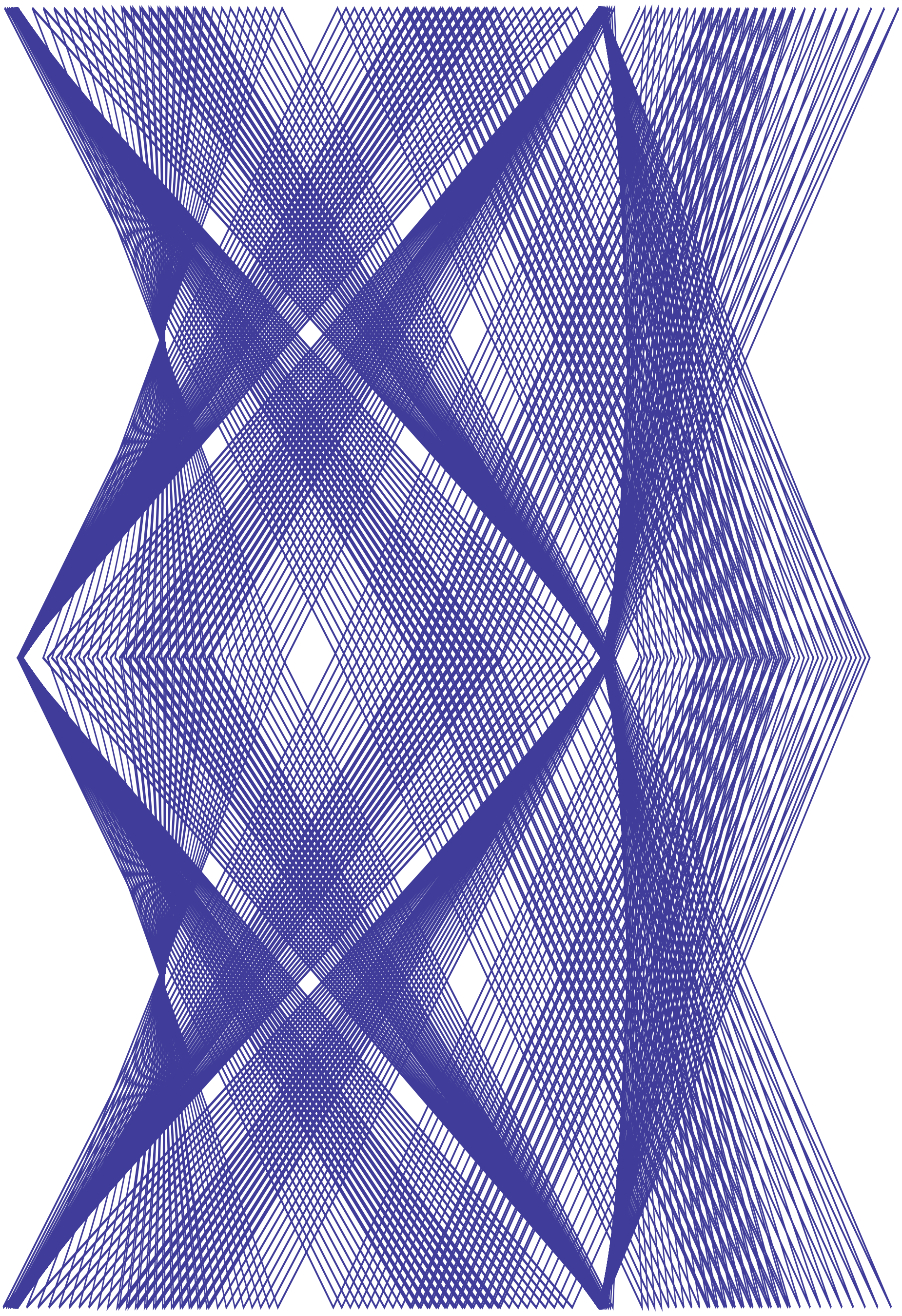
Rysunek 8: $a_0 = 60 - 60i$, $a_1 = 20 - i$



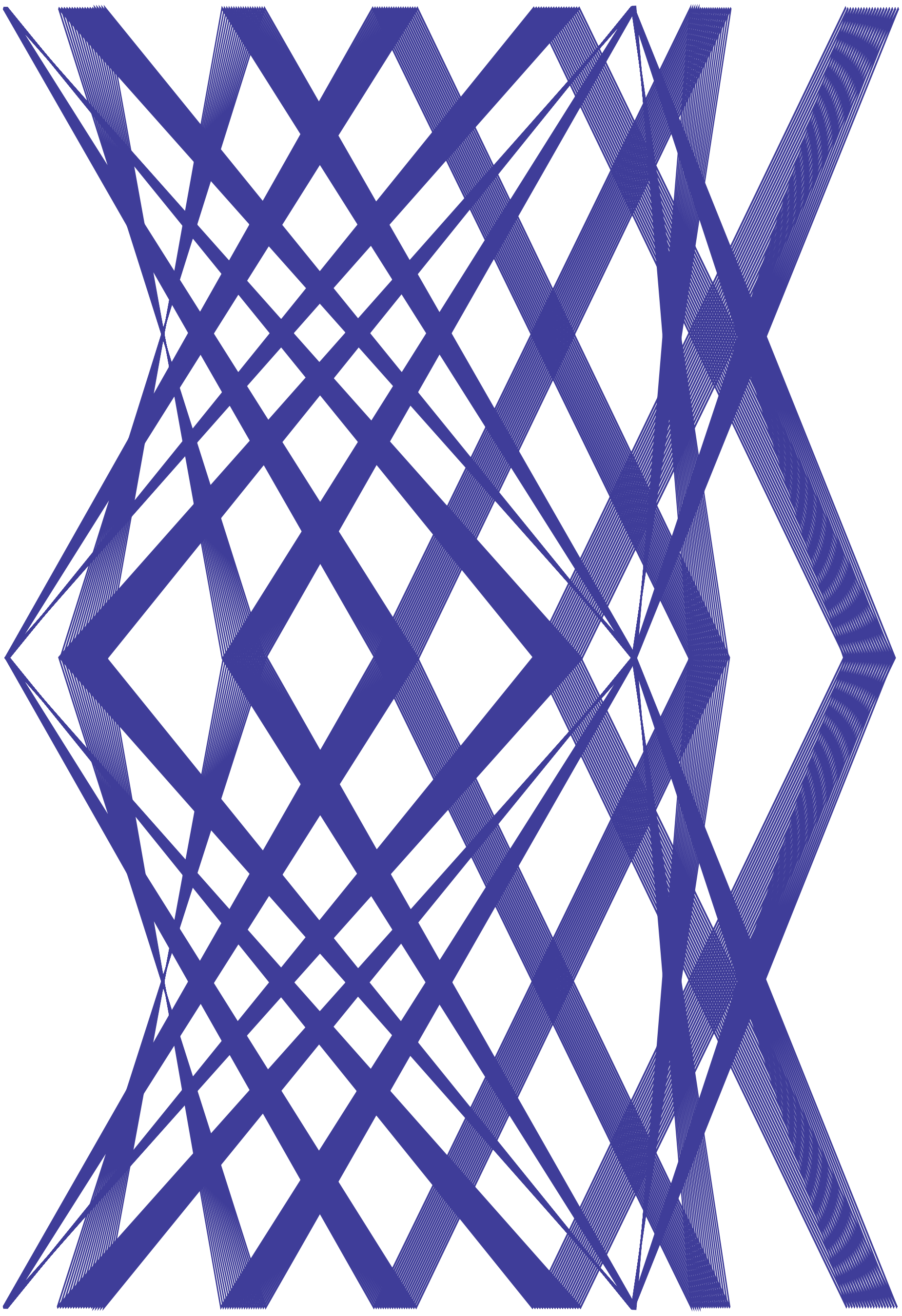
Rysunek 9: $a_0 = 3 + 3i$, $a_1 = -10$



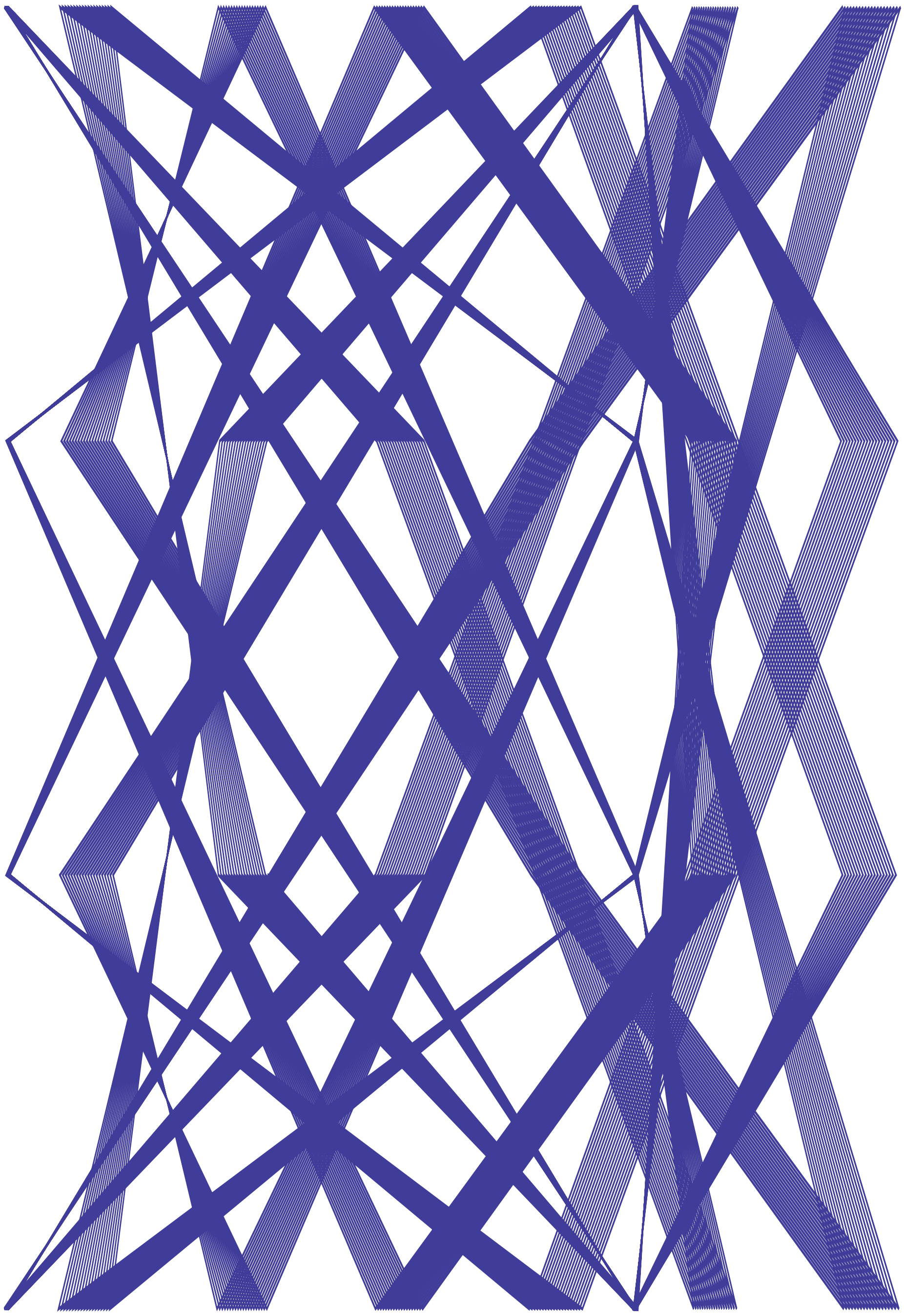
Rysunek 10: $a_0 = 6 - 6i$, $a_1 = 20$



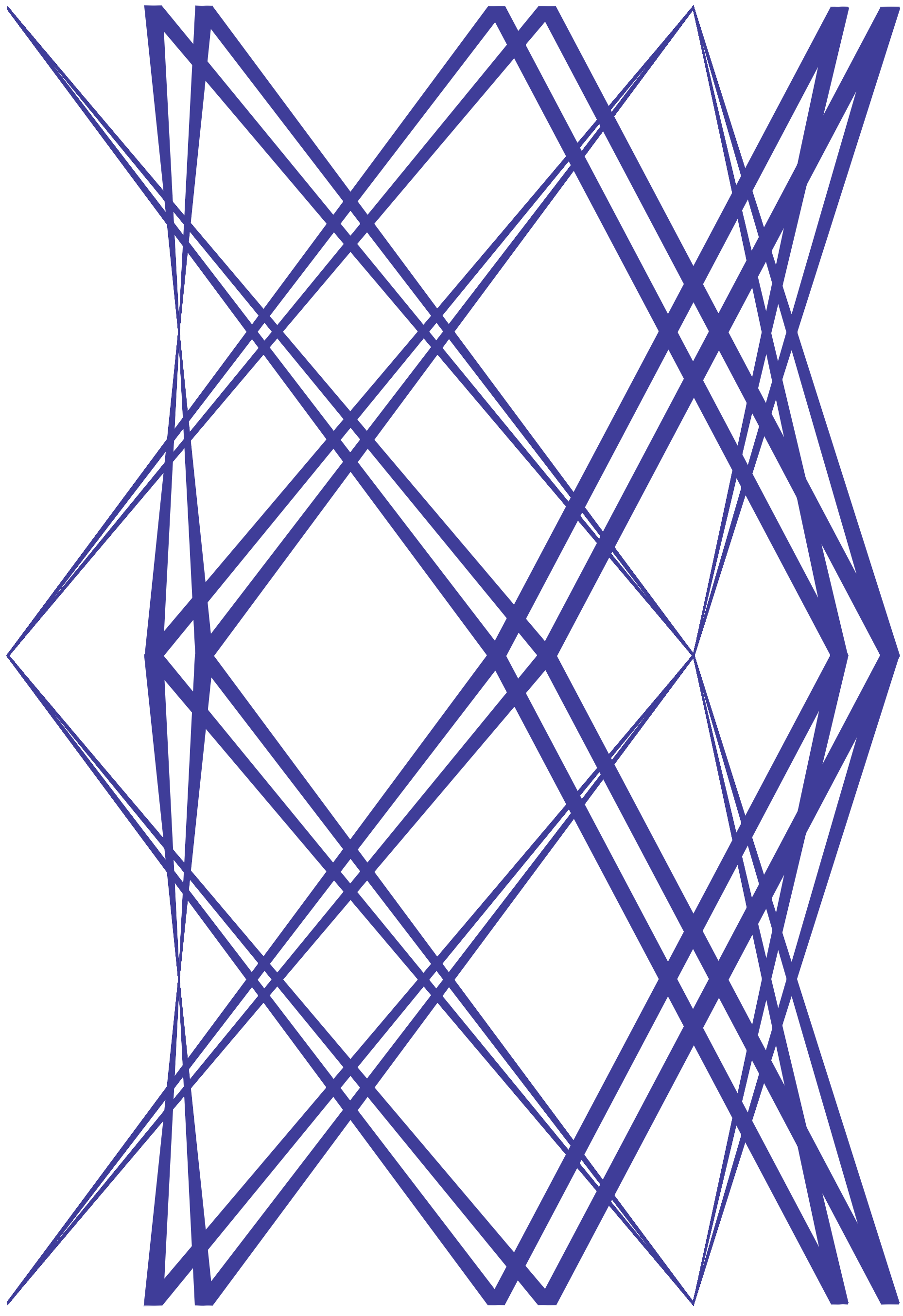
Rysunek 11: $a_0 = -10$, $a_1 = 30 - 3i$



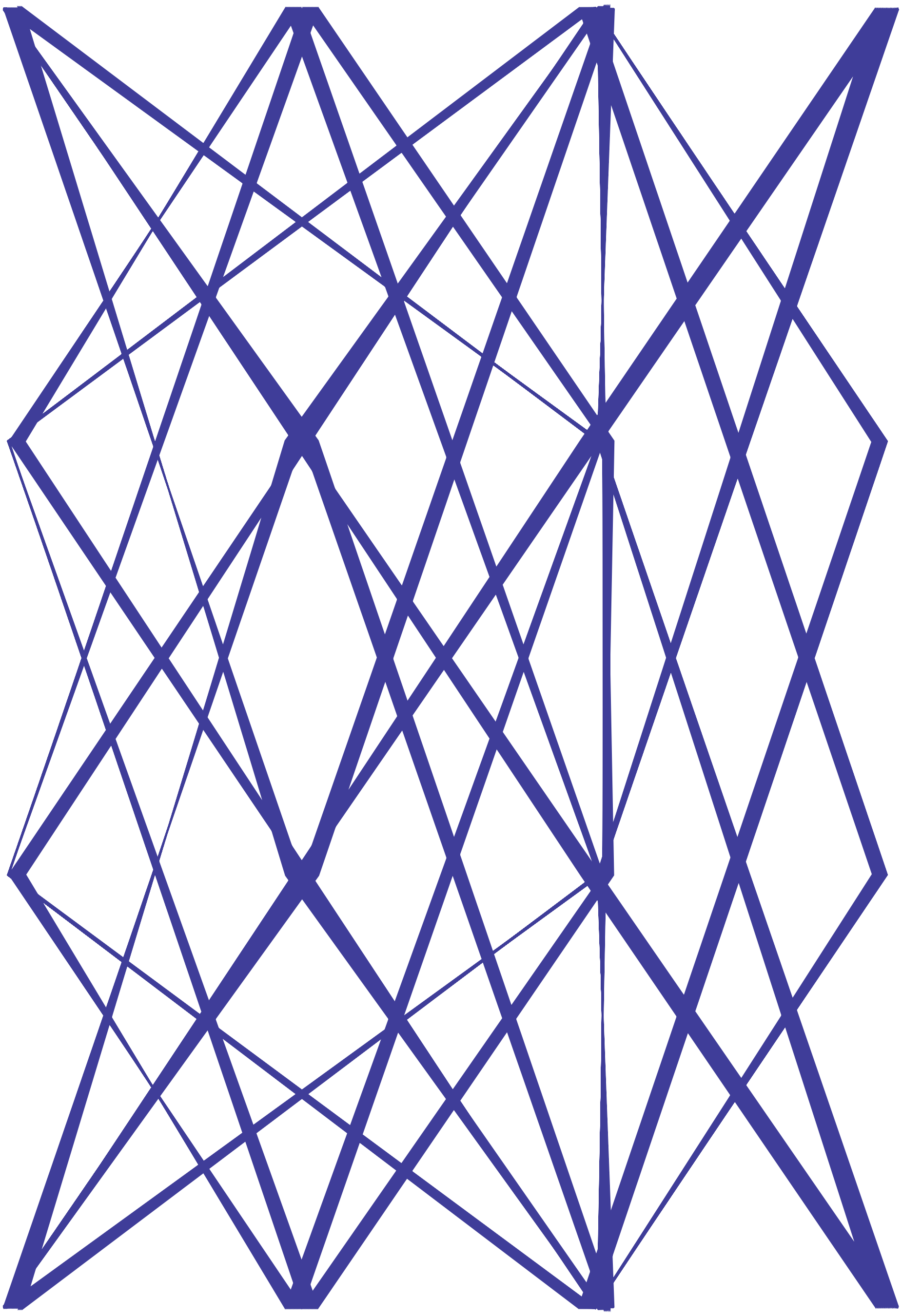
Rysunek 12: $a_0 = -10$, $a_1 = 60 - 3i$



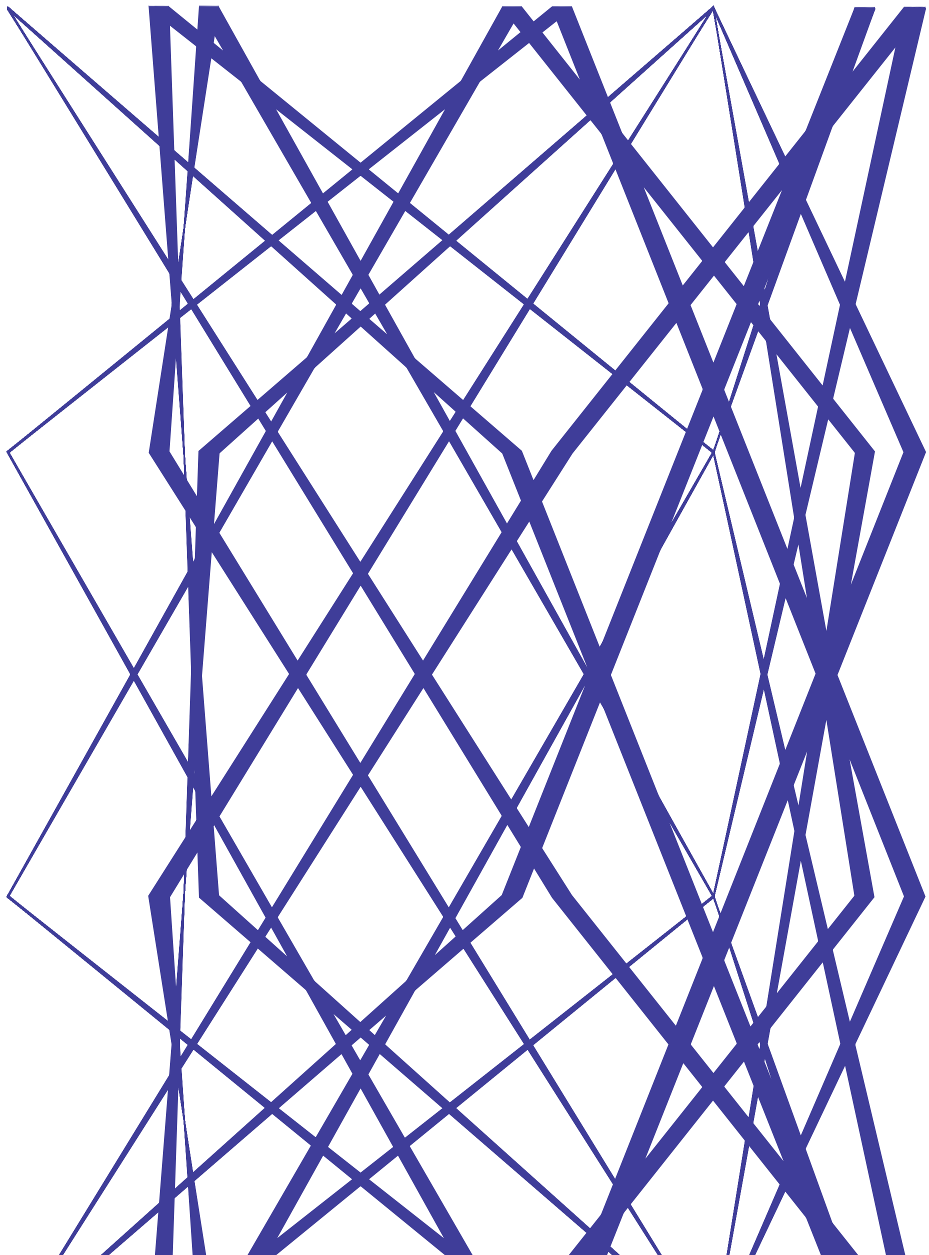
Rysunek 13: $a_0 = -10 - i$, $a_1 = 60 - 3i$



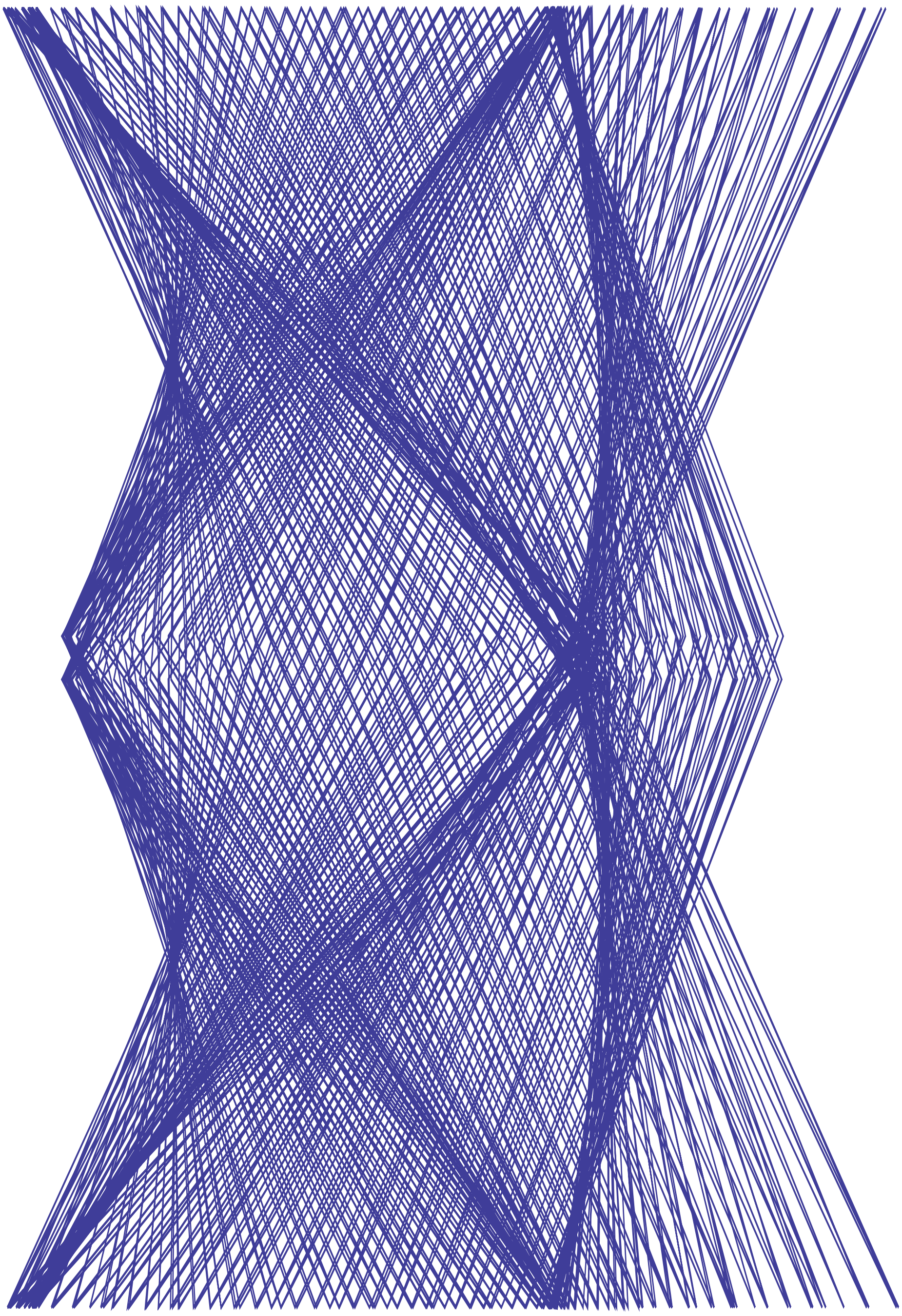
Rysunek 14: $a_0 = -100$, $a_1 = 60 - 3i$



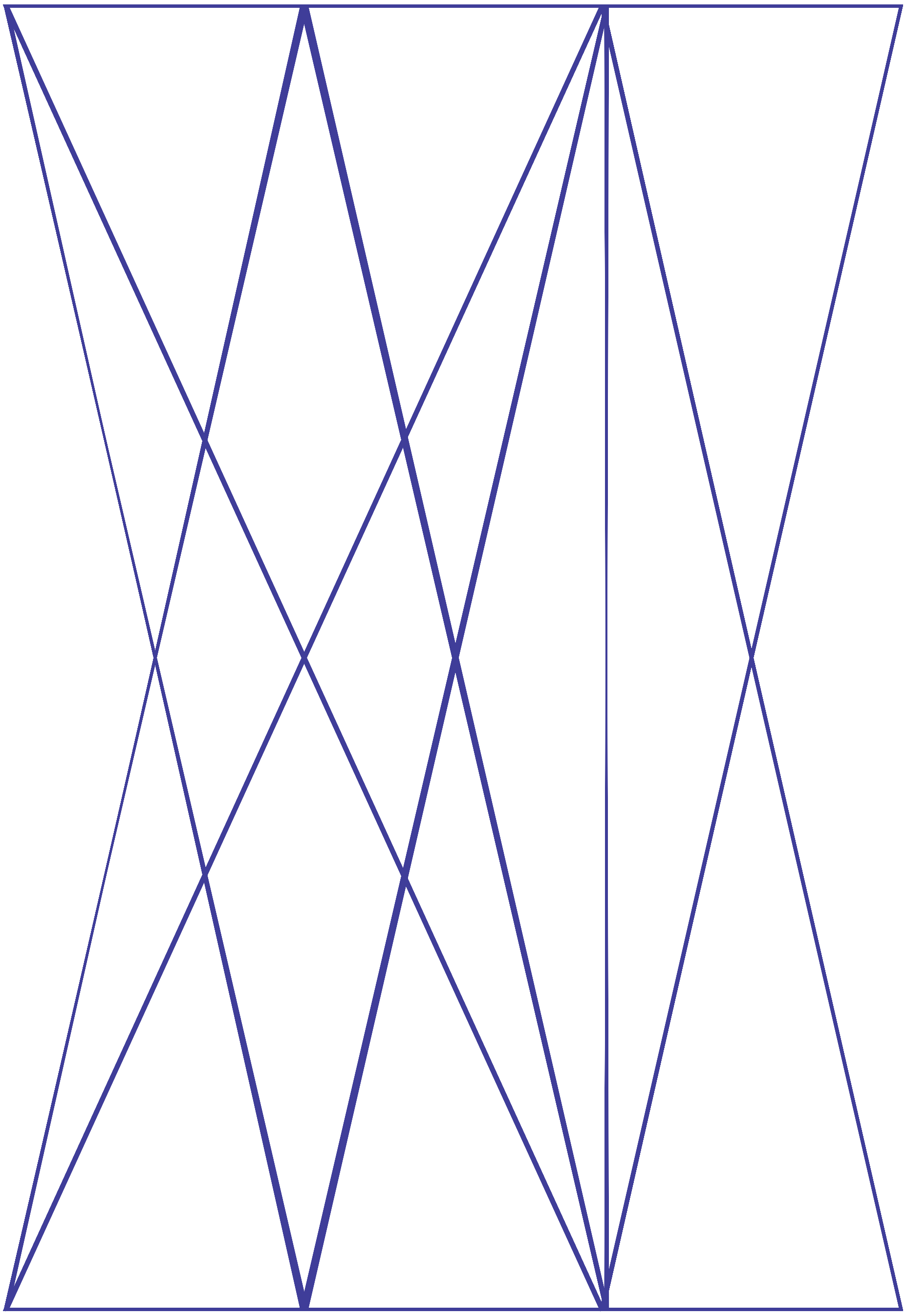
Rysunek 15: $a_0 = -100 - i$, $a_1 = 100 - 3i$



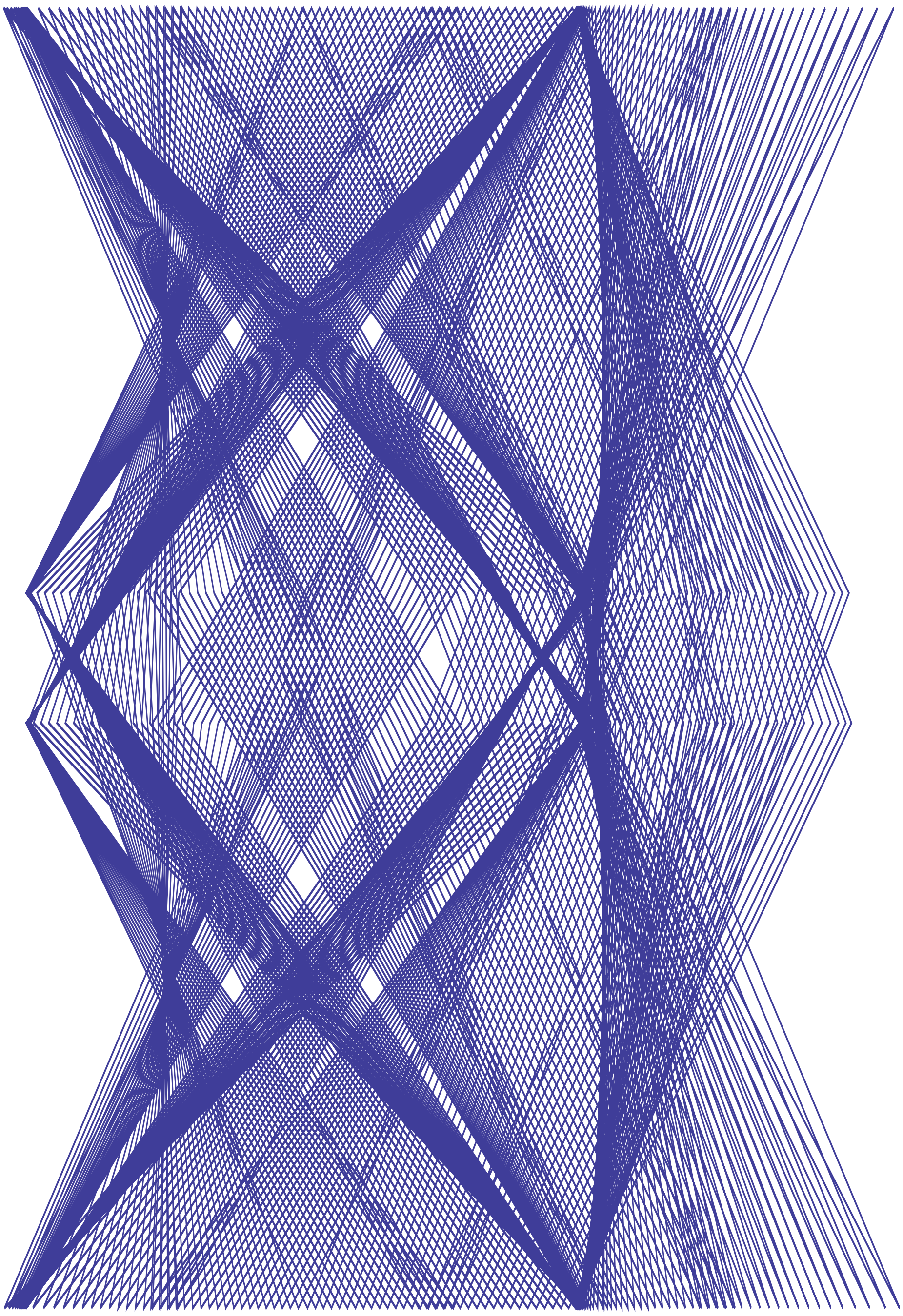
Rysunek 16: $a_0 = -100 - i$, $a_1 = 60 - 3i$



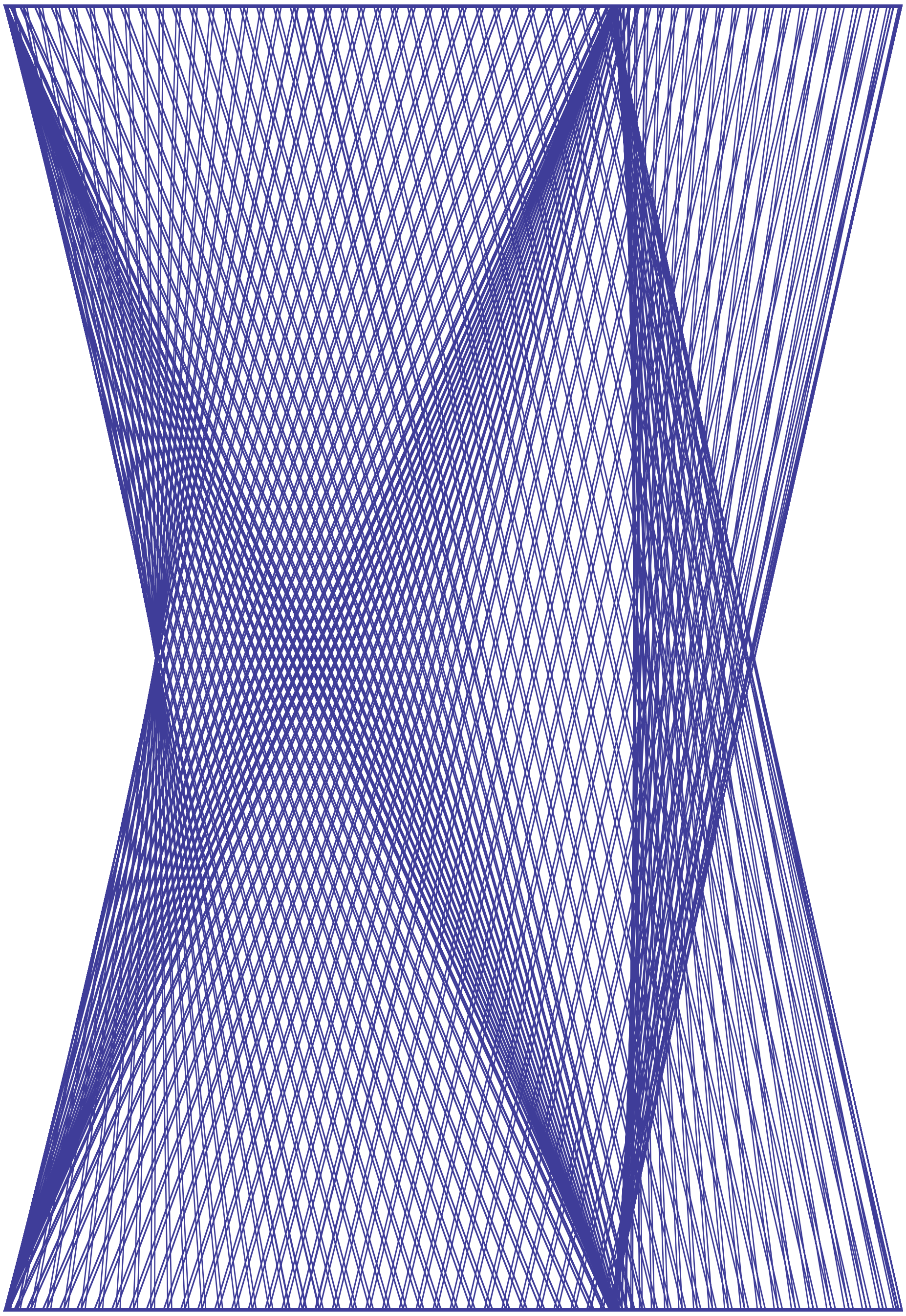
Rysunek 17: $a_0 = -100 - i$, $a_1 = 60 - 30i$



Rysunek 18: $a_0 = -100 - i$, $a_1 = -i$



Rysunek 19: $a_0 = 100 - i$, $a_1 = 10i$



Rysunek 20: $a_0 = -100 + 10i$, $a_1 = 1 + 10i$