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Rose curves with Chebyshev polynomials. (English) [Zbl 1404.51021]

Summary: We present a class of curves derived from a geometrical construction. We take points on two half-lines (or lines). The first point is on one of the half-lines and the second one is on the other half-line, while the next is again on the first half-line, and so on. The distance of two consecutive points is the unit. The orbits of these points when the angle of the lines goes from zero to $2\pi$ are similar to lemniscates and rose curves. For determining the parametric equation systems of the curves we use Chebyshev polynomials.

MSC:
51N20 Euclidean analytic geometry
33C45 Orthogonal polynomials and functions of hypergeometric type (Jacobi, Laguerre, Hermite, Askey scheme, etc.)

Keywords:
lemniscate; rose curve; Chebyshev polynomials

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