ON SIMILARITY OF SYSTEMS OF GEOMETRICAL AND ARITHMETIC TRIANGLES

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In work [1] has been offered evident geometric optic model on the basis of consideration of binomial distribution for the description of distribution of light in the laser.

In work [2] the nonlinear arithmetic pyramid and nonlinear arithmetic triangles have been described and ways of their construction are offered.

In works [3, 4] the new algorithm of construction of a nonlinear arithmetic triangle on the basis of numerical modeling and binary notation has been offered and described, communication of the offered algorithm and binomial coefficients of various kinds is shown. It is possible to add the description of geometrical objects offered in works [2 – 4] in the form of numerical sequences presented in [5].

In the present work various systems geometrical small angle triangles and cases of similarity of triangles in these systems are considered. Various kinds of arithmetic triangles and the geometrical form of their contours are described. Comparison of systems of geometrical triangles and contours of arithmetic triangles is drawn. It is shown that the contour of a triangle of Pascal represents system of similar geometrical triangles, and contours of a nonlinear arithmetic triangle – system of geometrical triangles in which all elements are various, but are multiple to some sizes.

References.

1. A. V. Yurkin. System of rays in lasers and a new feasibility of light coherence control//Optics Communications vol. 114, pp. 393, 1995.
2. A. V. Yurkin. System of beams in lasers, a nonlinear arithmetic pyramid and nonlinear arithmetic triangles//Proceedings of Institute of System Analysis Rus. Acad. Sci., vol. 32 (1), 2008, pp. 99 – 112.
3. A. V.Yurkin. Ray trajectories and the algorithm to calculate the binomial coefficients of a new type//Proceedings of Institute of System Analysis Rus. Acad. Sci., vol. 42 (1), 2009, pp. 66 – 77.
4. A. V.Yurkin. Ray trajectories, binomial coefficients of a new type and the binary system//Computer Research and Modeling, 2010, vol. 2, no. 4, pp. 359-397.
5. http://oeis.org/Seis.html. Sequences A053632, A063746, A128084, A162499 and others. N. J. A. Sloane, S. Plouffe. The Encyclopedia of Integer Sequences. New York: Academic Press, 1995.