ON TWO ANTIQUE IDEAS AND ON BIG POWER OF THE SECOND (NONLINEAR) TYPE

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1. The first idea – an arithmetic triangle. Mentions of an arithmetic triangle meet long before B. Pascal's its description. So, for example, such scheme of the triangle meets in works medieval Chinese - Yan Huej, at Omar Hajam, and also in earlier descriptions at the Indian mathematicians.

The second idea – paraxial or Gauss beams. The description of possibility of movement of atoms on the trajectories, deflected from a straight line, is resulted at ancient Greek philosopher Epíkuros and later – at ancient Roman philosopher Titus Lucretius Carus.

In the present work we actually unite these two ideas, i.e. we consider the branching system of the rays inclined under small angles to an axis and to each other.

2. In work [1] has been offered descriptive geometric optic model on the basis of consideration of binomial distribution for the description of propagation 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 work [3]the new algorithm of construction of a nonlinear arithmetic triangle on the basis of numerical modeling and binary notation has been offered, communication of the offered algorithm and binomial coefficients of various types is shown.

In the present work results of numerical calculations of binomial distribution of the second (nonlinear) type for the big power of a binomial are resulted. Difference of geometrical properties of linear and nonlinear arithmetic triangles and envelopes of binomial distributions of the first and second types is shown. The empirical formula for half-sums of binomial coefficients of the second types is offered.

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References.

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