

lab 5

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Who am I?

- My name is Yakushevich Artyom.
- Since 2018, I have been studying at RUDN University in the specialty Mathematics and Computer Science.

Why do Lab 5?

- The Lotka-Volterra model gave rise to the description of models of interaction between living beings and processes.
- This model helps to analyze a variety of processes, from biological to economic.
- The predator-prey model describes the processes of competition well enough, and there should not be only two competitors.
- In the economy, obviously, the same principles of “predator - prey” operate, otherwise the economy would never develop

The purpose of the laboratory work

Consider the simplest model of interaction between two species of the “predator-prey” type - the Lotka-Volterra model.

Laboratory tasks

Construct a graph of the dependence of the number of predators on the number of prey and graphs of changes in the number of predators and the number of prey under the following initial conditions: $x_{\{0\}} = 8, y_{\{0\}} = 30$. Find the stationary state of the system.

Results of the laboratory work

- Build a graph of the dependence of the number of predators on the number of prey.
- Build graphs of changes in the number of predators and the number of prey under the following initial conditions: $x_{\{0\}} = 8, y_{\{0\}} = 30$.
- Look for a stationary state of the system.

I considered the Lotka-Volterra model, the simplest model of interaction of two species of the “predator-prey” type

