

1. Variational setting of various mechanical and geometrical problems.
2. Problems reducible to the variational calculus.
3. Problem about Brachistochrone.
4. The problem about geodesic lines.
5. Equation of bending of the bar.
6. The simple problem of variational calculus.
7. The first variation
8. Basic lemmas of the variation calculus
9. Euler's equation.
10. The problem of variation related to the conditional extremum.
11. Weierstrass-Erdman conditions.
12. Setting of the variational problem depending on a multivariable function.
13. Variational problem depending on a multivariable function. Necessary conditions for extremum.
14. Multidimensional variational problems
15. Euler-Ostrogradsky equation generalization of the main lemma of the variational calculus.
 16. About the minimum of a quadratic functional.
 17. Ris method.
 18. Ris approximations.
 19. Ris system
 20. About solvability of the Ris system.
 21. About solvability of the Ris system (lemma 1,2)
 22. About solvability of the Ris system (lemma 3,4)
 23. Weak convergence of Ris approximations

24. Strong convergence of Ris approximations.
25. Galiorkin's method.
26. The method of least quadratics
27. The fastest descent method.
28. The gradient method for finding the minimum of a functional
29. Method of successive approximations.
30. The gradient method for finding the minimum of a functional differentiable in the Gato sense.
31. The minimum of a functional differentiable in the Gato sense (lemma 1,2)
32. Convergence of the gradient method for finding the minimum of a functional differentiable in the Gato sense