

**TOPIC 4. Functions and their graphs. Graphs in economic modeling.
Simple and compound interest in economic studies**

**ТЕМА 4. Функції та графіки. Графіки в економічному моделюванні.
Проценти прості та складені в економічних дослідженнях**

1. Numerical sets and operations with them.
2. The neighborhood of a point.
3. The definition of the function of one variable.
4. The domain of the definition and the range of values of a function.
5. Properties of a function.
6. The notion of the inverse function.
7. A superposition of functions.
8. A numerical sequence.
9. The definition of the limit of a sequence.
10. Infinitesimals and infinitely large values.
11. The definition of the limit of a function.
12. One-sided limits.
13. The first remarkable limit.
14. The second remarkable limit.
15. The definition of the function continuity at a point.
16. Classification of breaks.
17. The definition of a derivative.
18. A table of derivatives.
19. Rules of calculation of derivatives.
20. Derivatives of higher orders.
21. The definition of a differential.
22. Differentials of the higher orders.
23. The main theorems of differential calculus
24. L'Hospital rule.
25. The condition of the monotony of a function.
26. The maximum and the minimum of a function.
27. Convexity and concavity of the graph of a function.
28. Inflection points.
29. Asymptotes of the graph of a function.
30. Marginal analysis.
31. Elasticity of economic indicators.
32. The economic meaning of Fermat theorem.