

Special Topics

1. Constructing sets of numbers: Natural numbers, rational numbers, real numbers
2. Cantor's notion of cardinality
3. Irrational numbers: π , e , etc.
4. The fundamental theorem of Algebra
5. The Riemann integral
6. The Riemann–Stieltjes integral.
7. The fundamental theorem of Calculus.
8. Metric Spaces.
9. The mean value theorem.
10. An existence theorem for differential equations.
11. Solvability of polynomial equations.
12. Algebraic and transcendental numbers.
13. Differentiability
14. A continuous function which is nowhere differentiable.
15. Approximating functions
16. Taylor's theorem
17. Series of numbers
18. Series of functions
19. Fourier series
20. Integrability of continuous functions.
21. Lebesgue's criterion for Riemann integrability.