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Nota di contenuto	1. Mathematics before Leonhard Euler. 1.1. Introduction. 1.2. Pythagoras, the Pythagorean school and euclid. 1.3. The major impact of the European renaissance on mathematics and science. 1.4. The discovery of calculus by Newton and Leibniz -- 2. Brief biographical sketch and career of Leonhard Euler. 2.1. Euler's early life. 2.2. Euler's professional career -- 3. Euler's contributions to number theory and algebra. 3.1. Introduction. 3.2. Euler's Phi function and cryptography. 3.3. Euler's other work on number theory. 3.4. Euler and partitions of numbers. 3.5. Euler's contributions to continued fractions. 3.6. Euler's contributions to classical algebra -- 4. Euler's contributions to geometry and spherical trigonometry. 4.1. Introduction. 4.2. Euler's work in plane geometry. 4.3. Incircle, incenter and Heron's formula for an area of a triangle. 4.4. Centroid, orthocenter and circumcenter. 4.5. The Euler line and the Euler nine-point circle. 4.6. Euler's work on analytic geometry. 4.7. Euler's work on differential geometry. 4.8. Spherical trigonometry -- 5. Euler's formula for polyhedra, topology and graph theory. 5.1. Euler's formula for polyhedra. 5.2. Graphs and networks -- 6. Euler's contributions to calculus and analysis. 6.1. Introduction. 6.2. Euler's work on calculus. 6.3. Euler and elliptic integrals -- 7. Euler's contributions to the infinite series and the zeta function. 7.1. Introduction. 7.2. Euler and the infinite series. 7.3. Euler's

zeta function. 7.4. Euler and the Fourier series. 7.5. Generalized Zeta function. 7.6. Applications of the Zeta function to mathematical physics and algebraic geometry -- 8. Euler's beta and gamma functions and infinite products. 8.1. Introduction. 8.2. Euler's beta and gamma functions. 8.3. Applications of the Euler gamma functions. 8.4. Euler's contributions to infinite products -- 9. Euler and differential equations. 9.1. Historical introduction. 9.2. Euler's contributions to ordinary differential equations. 9.3. Euler's work on partial differential equations. 9.4. Euler and the calculus of variations -- 10. The Euler equations of motion in fluid mechanics. 10.1. Introduction. 10.2. Eulerian descriptions of fluid flows -- 11. Euler's contributions to mechanics and elasticity. 11.1. Introduction. 11.2. Euler's work on solid mechanics. 11.3. Euler's research on elastic curves. 11.4. Impact of Euler's work on modern aerodynamics -- 12. Euler's work on the probability theory. 12.1. Introduction. 12.2. Euler's work on probability. 12.3. Euler's beta and gamma density distributions -- 13. Euler's contributions to ballistics. 13.1. Introduction. 13.2. Euler's research on ballistics -- 14. Euler and his work on astronomy and physics. 14.1. Introduction. 14.2. Euler's contributions to astronomy. 14.3. Euler's work on physics.

Sommario/riassunto

Serves as a historical research monograph on the biographical sketch and career of Leonhard Euler and his major contributions to numerous areas in the mathematical and physical sciences. This title contains fourteen chapters describing Euler's works on number theory, algebra, geometry, trigonometry, and differential and integral calculus.
