Lomen/Lovelock present differential equations as a natural extension of calculus, and encourage students to see them as a natural tool for investigating many aspects of science and engineering. The book provides lively reading with compelling applications, projects and experiments that supply students with opportunities to explore the differential equation and the process it models. Lomen/Lovelock suggest throughout the text that students employ technology as an instrument to check, discover and interpret the behavior of solutions.

Appropriate for Sophomore courses in Junior Colleges, State Schools and Universities.

NEW TO EDITION

• Streamlined examples and exposition to make the book easier to teach and learn from.

• Development of standard techniques was condensed while comparisons between nonlinear and linear equations, autonomous and nonautonomous was expanded.

• Increased emphasis on the interplay between first order systems and second order equations, and treated spring-mass systems, pendulums and electric circuits in a parallel fashion.

• Added new material on nonlinearity, chaos, and qualitative reasoning and included many more interesting and realistic examples and exercises.

FEATURES

• Visual exploration of solutions via slope fields, direction fields, phase plan solutions, and other graphical interpretations is emphasized.

• The rule of four is used to treat topics from numerical, graphical, analytical, and descriptive viewpoints.

• Data sets are used to develop differential equations, to obtain values of parameters in differential equations, and to check the accuracy of mathematical models.

• Technology is encouraged to use as differential equations tool to allow students to become active participants in the learning process and enable them to think, experiment, and comprehend.

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