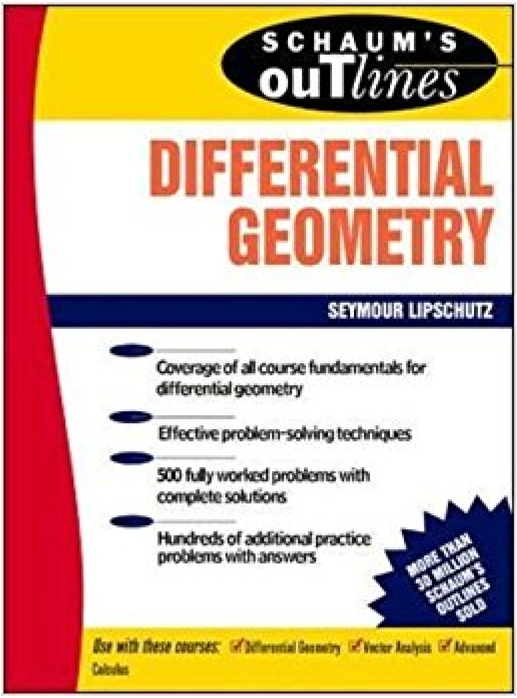
Schaum's Outline Of Differential Geometry (Schaum's)



Synopsis

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Customer Reviews

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A classic.

Just what my son needed to help in college Differential Geometry class. Great helper.

Very good tutorial book in Differential geometry. the study of Geometry of surfaces is a field for geodetic surveyers. The has a basket full of information on geometry of surfaces.

great price

While the few solved problems have been carefully selected, and the topics covered continue to reflect Martin Lipschultz normal high standards of exposition, overall this volume is a sub par effort for topics in this series.The problem lies with the progression of topics, and the erratic treatment -- both of which seem to lack rhyme or reason and leaves the reader with no sense of continuity or cohesion to the substance: Why not, for instance, have "vectors" and "vector functions of a real variable," followed by "vector functions of a vector variable?" And why throw topology right into the middle of this mix? Was it only to get to the idea of Homeomorphisms? If so, should this not have been done much earlier on in the book, maybe even as early as the very first chapter, providing a smoother transition to vector functions of higher mathematical forms? Or better yet, perhaps the author should have merely mentioned the importance of elementary topology, in passing, and then referred the reader to an introductory topology textbook, or as a last resort, he could have added topology as an appendix? But not just toss it in the middle unexpectedly without explanation in an almost completely disconnected fashion. This smattering of topology just seemed so much out of place here. And in any case, it surely was insufficient to tie down the concepts needed to build the necessary bridge between topology and differential geometry. Yes, it did help in understanding the parametric representations of surfaces, but the reader still "was on his own" and had to hustle mightily to make the intended connections.As well, throughout the book, the lurching back and forth leaves the reader without any sense of coherence on which to build confidence in either the theory of these many complex topics, or problem-solving in the field of differential geometry, more generally. Thus I would argue at the very least that this volume should be relabeled "Selected Topics in Differential Geometry," or better yet "Eclectic Topics in Differential Geometry.'Its real merit is as a supplement only: neither as a text, nor as a robust basis for developing skills beyond the basics for solving problems in Differential Geometry.Still, since there is so little basic material available in the field, this remains a useful, even if not an entirely valuable, resource. Three stars.

Good reference material for partial differential Equations and Tensor Analysis. I highly recommend this book.

MML does a good job insisting on the "how" but, sometimes at the expense of the "why" : why differential geometry, why tensors etc.Some parts in his text can be unclear but are always backed by excellent figures and a load of thoroughly illustrative, solved problems.A few hints : MML's treatment of the total derivative -- which he chooses to call differential -- is obscure and the reader will find it necessary to clarify the concept by going to more fundamental expositions such as Apostol's, Kline's and Massey's... On the other hand, his treatment of tensors, although lighter than Kreyszig's, is nevertheless quite good and does the job. Finally, the Gauss-Bonnet formula and theorem, in the "intrinsic geometry" chapter, are much more comprehensive than the heavily convoluted exposition in Kreyszig's book.Also, as usual in the Schaum's outlines, too many proofs are sent to the solved-problems portion, which breaks the reading linearity...Not very efficient, in my opinion.All in all, this Schaum's outline is a good introductory complement to Kreyszig's masterpiece.

Many years after its publication, this book continues to be a valuable introduction to the differential geometry (DG) of curves and surfaces in the euclidean 3-dimensional space R^3. The text is clear and suitable for self study, since each chapter combines a serious bulk of theory and many solved exercises, as well as some unsolved problems. The work starts reviewing much of the differential calculus needed. Then, it deals with curves, defining curvature and torsion, and proving the Frenet-Serret equations. It is shown that every regular curve is detrmined by its curvature and torsion (up to a rigid motion). Many interesting problems on curves illustrate the theory. But little attention is given to plane curves and no global property of curves is given (what is quite understandable, since they are hard to prove). The book continues with surfaces, defining parametrizations, atlas, the tangent plane and the differential of a map of surfaces. Then, we find an excellent introductory exposition of curvature lines and assymptotic lines (including Meusnier, Euler, Rodrigues and Beltrami-Enneper theorems) as well as geodesic curvature, geodesic lines and Gauss curvature. The so called fundamental existence and unicity theorems for curves and surfaces in R^3 are stated and proved, as well as Gauss Theorema Egregium. However, there is no mention of parallel transport (you can find this in StokerÂ Differential Geometry (Wiley Classics Library), in GoetzÂ Introduction to Differential Geometry (Addison-Wesley Series in Mathematics), in Millman-ParkerÂ Elements of Differential Geometry's, in do Carmo'sÂ Differential Geometry of Curves and SurfacesÂ or in Klingenberg'sÂ A Course in Differential Geometry (Graduate Texts in Mathematics), all of them introductory books on DG too. The book also treats the simplest global properties of surfaces: (1) orientability (mildly presented), (2) Liebmann's theorem characterising compact connected surfaces of constant curvature in R^3 as spheres (clearly proved, without assuming its orientabilty), (3) Gauss-Bonnet theorem, proved in a rather sketchy way, but well illustrated in some exercises, which clarify its meaning and difficulty. In general, many theoretical properties are proved as exercises. Practical questions are easy or not too hard to solve. If you really don't know the subject, this book is a perfect start, alone or combined with those previously cited works, or with Struik's classicalÂ Lectures on Classical Differential Geometry: Second Edition, Oprea'sÂ Differential Geometry and its Applications (Classroom Resource Materials) (Mathematical Association of America Textbooks), or Montiel-Ros'Â Curves and Surfaces (Graduate Studies in Mathematics). Other problem books on the DG of curves and surfaces are rare. I will mention (1) Fedenko's (Mir Editions, now re-edited by USSR (sic!) editions-Moscow) (similar to M. Lipschutz's level, but much less detailed and with no theory). (2) Mishchenko-Solovyev-Fomenko (Problems in DG and Topology, Mir- Moscow).

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