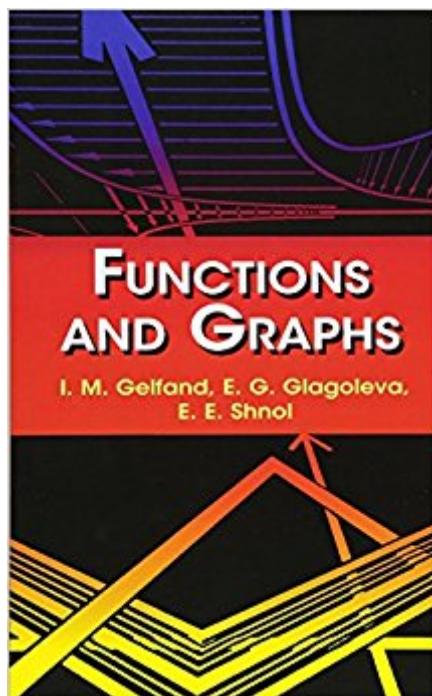


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# Functions And Graphs (Dover Books On Mathematics)



## Synopsis

The second in a series of systematic studies by a celebrated mathematician I. M. Gelfand and colleagues, this volume presents students with a well-illustrated sequence of problems and exercises designed to illuminate the properties of functions and graphs. Since readers do not have the benefit of a blackboard on which a teacher constructs a graph, the authors abandoned the customary use of diagrams in which only the final form of the graph appears; instead, the book's margins feature step-by-step diagrams for the complete construction of each graph. The first part of the book employs simple functions to analyze the fundamental methods of constructing graphs. The second half deals with more complicated and refined questions concerning linear functions, quadratic trinomials, linear fractional functions, power functions, and rational functions.

## Book Information

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## Customer Reviews

"All through both volumes [Functions & Graphs and The Methods of Coordinates], one finds a careful description of the step-by-step thinking process that leads up to the correct definition of a concept or to an argument that clinches in the proof of a theorem. We are ... very fortunate that an account of this caliber has finally made it to printed pages... Anyone who has taken this guided tour will never be intimidated by n ever again... High school students (or teachers) reading through these two books would learn an enormous amount of good mathematics. More importantly, they would also get a glimpse of how mathematics is done." -- H. Wu, The Mathematical Intelligencer --This

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I tend to look at elementary books like this one from the point of someone who doesn't need to learn from it but might want to use it as a text if teaching or tutoring someone. I learned almost nothing from this book, but I didn't expect to, as it's all material I learned ages ago. But for someone encountering this material for the first time, this would be an excellent book. I see this book as used primarily in a pre-calculus math class or for tutoring someone about to take calculus. It gives a good exposition of material that will be encountered at the time a student takes calculus, but at a level that assumes the student has only the algebra that most students entering a calculus course have taken. And from that point, it explains the elements of drawing graphs of algebraic functions and the ideas of tangency that are so critical to differential calculus, and does so in a clear way, with helpful diagrams. It is a slim book, and probably by itself could not be the only text in a pre-calculus math class, but on the subjects it covers, it is the best I have seen. (And that is underrating it, because there aren't many books on the subject. So one might say that "the best there is" isn't really as high praise as it deserves.) This book certainly deserves a 5-star rating.

In this slim, 100 page volume, Gelfand, Glagoleva and Shnol have a wonderful review of graphing. There is nothing here incredibly advanced; they only cover linear, quadratic, polynomial, and rational (ie,  $f(x) = P(x)/Q(x)$  ) functions. But they systematically explain how to transform, how to combine, how to shift, how to reflect... They consider asymptotes (vertical and horizontal), zeros, symmetries. They spend more time with absolute value than one might expect. They treat these limited topics in depth. I read this book on vacation, cover to cover, completing every single exercise. It was a great refresher, and led me to think about several graphing-skill topics from new perspectives. I am a teacher, and this book has informed my teaching. Also, I intend to use it with my math team. I do not think you could use this book to teach graphing from scratch. Rather, I see it as a source of enrichment. The major drawback to this book is the lack of answers in the back. But if you are really stuck, the judicious use of a graphing calculator (or checking with friends or colleagues) should be good enough. At the price, there is no reason not to own "Functions and Graphs."

I'm using this small, pocket-sized book by Gelfand to review essential graphing concepts and have

one thing to say- Outstanding. Where books like this were when I was learning maths as a youngone is beyond comprehension. Looking back on my math education now, I can honestly say I was deprived. Poor,poor, me.....Enjoy.

I read this book over a weekend and enjoyed a lot. The topics covered are really elementary but the presentation is enlightening. After having read this book, you can immediately see what function to fit to any shape you come across. Could be good for pre-calculus.

The contents of the book is fine, just what I expected when I purchased it. However, the print and binding jobs were so terrible that I had to return them for a refund, even after receiving a replacement. Pages on the left and right were not aligned, and the same applies to the cover. I ordered the version from Dover instead, and at half the price too.

Once again folks I'll try ta keep it sane. But good God when ya got products like this its hard ta jest write a wimpy little review sayin (in a nasty, nasally BBC voice), "I believe this volume to be quite a good book. The explanations are extremely well written and the illustrations are superb." Good God! That ain't no way ta write! We got this book ta supplement our homeschoolin' curriculum and boy does it pay off, let me tell yew! Now th only criticism I've read o this book is that is don't explain functions. Well hell, my complaint is that my dishes dont wash theyself. That makes jest as much sense! Not bein 'taards we didn't buy this here book and give it ta our little scholars thinkin' well,, thats all they'll ever need. No, we got it ta supplement what we wuz doin in other books. It's got some fun exercises ta do with different functions, linyer, quadratic, power, exponential and others. It's geared toward helpin th littl'uns learn ta graph and ta recognize what functions actually look like. How shifts and reflections work and th like. If ya want a fun book, if ya want ya kids not ta be effin' little wankers about math (you know, complainin about it bein hard an all), then get this book . It'll make yer day!

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