

<<身边的数学>>

图书基本信息

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作者：皮纳德

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前言

由Thomas L.Pirnot编著的Mathematics Au Around一书是为从事社会科学、教育学、商业、艺术和其他非理工类专业的学生而写的教学教科书。

本书可以使从事这些专业的学生理解并欣赏到数学在各个领域的许多精彩应用。

本书共14章，内容包括集合论、数理逻辑、图论、数论、统计、概率、代数、几何等。

全书以数学的应用作为动机，每一章的开始提出实际问题，然后发展必要的数学工具，再解决这些实际问题，在应用中进一步加强对数学的理解。

因此提出问题和解决问题占本书很大篇幅。

众多应用问题中有些联系日常生活：如信用卡购物问题，分期付款与抵押贷款问题，年利率的计算，运动队成绩的评价，彩票获奖的几率，股票市场中的决策问题，疾病的传播问题，席位的公平分配问题，唱片销售的回归模型等；有些是著名的数学问题：如四色问题，TSP问题（Traveling Salesman Problem）；也有些是数学在高新技术中的应用问题：如模糊逻辑用于空调系统，矩阵用于医学计算机成像、图形加速和计算机图形学，分形用于人体中血管、气管的研究，用于创作逼真的自然景观。

总之它们使本书变得越味横生。

全书贯穿着强烈的应用意识，使数学理论紧密联系政治、经济、体育、艺术、医学、生物、科技、环境等方面的实际问题，这在国内外数学教科书中是不多见的。

本书还从教育学的角度对叙述方式和版面作了精心安排，使得所有概念和理论都由浅入深，因此本书在阅读时易读好懂。

为了引导学生掌握正确的学习方法，作者还在第一章的第一节讨论了解决实际数学应用问题的策略和原则，并提供用以下方式来解决数学问题：1.画图；2.用自己的语言叙述问题；3.理清问题的条理；4.找规律；5.简化问题；6.猜想；7.将新问题变为老问题。

本书除了可作为社会科学、教育学、商业、艺术等文科专业的教材以外，还可以作为理工类学生、教师、工程技术人员和管理工作者的参考书或工具书。

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内容概要

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作者简介

作者：(美国)皮纳德

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章节摘录

插图：Little was done to develop the theory of counting until the sixteenth century, when mathematicians began to analyze games of chance. While answering questions about throwing dice and drawing cards, a group of European mathematicians began to organize their results into a formal theory of counting. One of the most prominent figures in this development was the French- man Blaise Pascal, who wrote a paper in 1654 dealing with the theory of combinations. Pascal was a child prodigy who became inter- ested in Euclid's Elements at age twelve. Within four years he was doing original research and wrote a paper of such quality that some of the leading mathemati- cians of the time refused to believe that it had been written by a sixteen-year-old boy. Pascal later abandoned mathematics to devote himself completely to philosophy and religion. In 1658, however, while unable to sleep because of a toothache, he decided to think about geometry to take his mind off the pain and, surprisingly, the pain stopped. Pascal took this as a sign from heaven that he should return to mathematics. For a short while he re- turned to his research, but soon became seriously ill with dyspepsia, a digestive disorder. Pascal spent the remaining years of his life in excruciating pain, doing little work until his death at age 39 in 1662.

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编辑推荐

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