<<2008恒隆数学获奖论文集>>

图书基本信息

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内容概要

本书集结了2008年“恒隆数学奖”的获奖论文及数学家的精辟点评。
每篇论文都是得奖者自定的数学专题之研习结果。
参赛学生经过一年多的努力，得以训练多无智能和创意思考能力，并活学活用数学知识，摆脱传统死读书的学习模式，从中取得考试外的满足感和喜悦感，借以领略数学的美。
本书不仅可供中学生阅读，亦可供数学教师和数学爱好者阅读参考。

每两年一届的“陋隆数学奖”由恒隆地产和香港中文大学数学系主办，乃为香港中学生而设的数学研究比赛。
由恒隆地产有限公司董事长陈启宗先生和世界杰出数学家、1982年费尔兹奖信2010年沃尔夫奖得主丘成桐教授于2004年创立，目的是鼓励中学生尽量发挥数理创意，激发他们对数学及科学的求知热情。

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章节摘录

版权页： 插图： 5.Conclusions and Reflections In the previous chapter,we have followed the paths that mathematicianshas lain for us decades ago.Euler has provided the first constructionmethod,while Sade has given us the most recent(along with Parker,Bose,and Shrikhande and their transversal designs). To summarise their contributions:Euler has proven that Euler squares ofodd order or of an order that is a multiple of four exists(He also provedthe obvious nonexistence of Euler squares of order 2),while Parker,Bose,and Shrikhande constructed Graeco-Latin squares of all orders,includingthose of form4k+2,with the exception ofn = 2 and n = 6.On theother hand,Tarry has shown that Graeco Latin squares of order 6 are notpossible. Theorem 29.Euler squares exist for every order n except when n = 2or 6. But the research does not stop here.Recently,more elegant proofs havebrought forward by Stinson,Dougherty,and Zhu Lie.Also,research inthis area has taken on a greater scope.Mathematicians working in thisfield are now researching selforthogonal Latin squares -- squares thatare orthogonal to its transpose.Some error-correcting codes in algebraiccoding theory are also based on MOLS.Speaking of which,perhaps themost exciting developments come from finite projective planes,to whichthe following theorem will link MOLS. Theorem 30.A complete set of MOLS of order n implies a finite projective plane of order n. This had all started out as the simple riddle of 36 officers.After leadingto developments in combinatorics,group theory,field theory,transversaldesign,and work done by many mathematicians around the globe,wefinally begin to draw the close to this problem.Yet,the future of Latinsquares is still vast to explore. Where do we go from here? I list here a few open problems and conjecturesyet to be solved.

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