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SYNOPSIS

129 The Academy Corner: No. 10 *Bruce Shawyer*

Featuring a Canadian university entrance scholarship examination from the 1940's, and challenging today's university students to provide "nice" solutions.

131 The Olympiad Corner: No. 181 *R.E. Woodrow*

Featuring selected problems from the 1994 Israel Mathematical Olympiads; problems from the B-National Israel-Hungary Competition, 1994; the solutions to "another five Klamkin Quickies", which were in the last issue; a solution to problem 2 of the 35th IMO; the solutions to some of the problems proposed, but not used, at the 35th IMO; a counter-example to the first problem proposed, but not used, at the 35th IMO; and solutions to some of the problems in the Sixth Irish Mathematical Olympiad (1995).

143 Book Review *Andy Liu*

This month's book is:

The Lighter Side of Mathematics,
edited by Richard K. Guy and Robert E. Woodrow,
Mathematical Association of America, Washington DC,
1994, ISBN 0-88385-516-X, 376+ pages, softcover, US $38.50

Reviewed by ***Murray S. Klamkin***, University of Alberta.

145 In memorial — Leon Bankoff
An appreciation by Dr. Clayton Dodge.

146 Heronian Triangles with Associated Inradii in Arithmetic Progression

Paul Yiu, Department of Mathematics, Florida Atlantic University

This article is dedicated in memory of Dr. Leon Bankoff.

The area of a triangle is given in terms of its sides a, b, c by the Heron formula

$$\triangle = \sqrt{s(s-a)(s-b)(s-c)},$$

where $s := \frac{1}{2}(a+b+c)$ is the semiperimeter. A triangle $(a, b, c; \triangle)$ is called Heronian if its sides and area are all integers. L. Bankoff has made an interesting observation about the Heronian triangle $(13, 14, 15; 84)$.

The height on the side 14 being 12, this triangle can be decomposed into two Pythagorean components, namely, $(5, 12, 13)$ and $(9, 12, 15)$. The inradii of these Pythagorean triangles, and that of the Heronian triangle, are respectively 2, 3, 4, three consecutive integers! (See Figure 1). Noting that the sides of the Heronian triangle are themselves three consecutive integers, Bankoff remarked that "no other Heronian triangle can claim that distinction".

Actually, apart from this, there are exactly two other Heronian triangles with three consecutive integers for the associated inradii. Each of these two Heronian triangles is decomposable into two Pythagorean components.

The author continues to illustrate these and other properties of such triangles.

150 The Skoliad Corner: No. 21 *R.E. Woodrow*

Featuring the 1995 Manitoba Mathematical Contest for students in Grade 12; and the answers to the Mathematical Association National Mathematics Contest 1994 (UK).

152 Mathematical Mayhem

152 A Journey to the Pole — Part II
Miguel Carrión Álvarez
The second of two articles explaining how to handle curves in polar coordinates.

158 A Pattern in Permutations
John Linnell
An investigation into the kind of numbers that arise from sums of the form $\sum_{k=0}^{n} k^t p_n(k)$,
where $p_n(k)$ is the number of perutations of n elements.

161 IMO Correspondence Program
Edward J. Barbeau
A set of problems for training potential members of the Canadian IMO team.

163 Mayhem Problems

165 High School Problems
166 Advanced Problems
166 Challenge Board

166 Problems: 2226–2237, 2173 x This month's "free sample" is:

2230. *Proposed by Waldemar Pompe, student, University of Warsaw, Poland.*

Triangles BCD and ACE are constructed outwardly on sides BC and CA of triangle ABC such that

$AE = BD$ and $\angle BDC + \angle AEC = 180°$.

The point F is chosen to lie on the segment AB so that

$$\frac{AF}{FB} = \frac{DC}{CE}.$$

Prove that

$$\frac{DE}{CD + CE} = \frac{EF}{BC} = \frac{FD}{AC}.$$

Non-subscribers are invited to send solutions to the Editor-in-Chief:

Bruce Shawyer
Department of Mathematics and Statistics
Memorial University of Newfoundland
St. John's
Newfoundland
Canada A1C 5S7