

T. Bisztriczky

Richard Guy's research in Geometry was motivated by (1) the connections between elementary number theory and geometry, and (2) the many geometrical problems that are intuitive (in the sense of easy to state) or appealing to students and teachers (in math camps and competitions). His contributions to the field follow the style of such British geometers as D.M. Sommerville and H.F. Baker. The latter is best known to us via his six volume Principles of Geometry [Baker 10] and An Introduction to Plane Geometry [Baker 71]

As examples of (1), we have *The Lighthouse Theorem, Morley & Malfatti – a budget of paradoxes* [Guy 07] and *Triangle-rectangle pairs with a common area and a common perimeter* [Bremner and Guy 06]. In the former, Richard notes that "the combination of geometry and number theory is dear to my heart", and the combination here is between integer-edge triangles and primes $p > 7$ with the property that $p = 3n+1$ and $p^6 = a^2 + 4762800b^2$ for unique integers $|a|$ and $|b|$. In the latter, he and Andrew Bremner show that such triangle-rectangle pairs are parametrized by a family of elliptic curves.



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Regarding (2), we refer to Richard's many contributions to the Problem Sections of the A.M. Monthly and the Math. Magazine, and to his book with H. Croft and K. Falconer, *Unsolved Problems in Geometry* [Croft et al 94]. As W. Moser foretold in his AMS review of the text [Moser 94], the volume became a sourcebook for anyone wishing to do research in intuitive (convex, discrete and combinatorial) geometry.

Richard K. Guy was an ideal colleague: very knowledgeable, always supportive and unflinchingly kind. With his office door always open and his ever willingness to provide counsel and exchange ideas, he was very much an epitome of the cinematic venerable professor. We are grateful for the many decades that he was with us.

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References

[Baker 71] H. F. Baker, *An Introduction to Plane Geometry, With Many Examples*. Reprint of 1943 first edition. Chelsea Publishing Co., Bronx, NY, 1971.

[Baker 10] H. F. Baker, *Principles of Geometry*. Reprint of the original 6 volumes. Cambridge Library Collection. Cambridge University Press, 2010.

[Bremner and Guy 06] A. Bremner and R. K. Guy, Triangle-rectangle pairs with a common area and a common perimeter, *Int. J. Number Theory* **2** (2006), no. 2, 217-223.

[Croft et al 94] H. T. Croft, K. J. Falconer and R. K. Guy, *Unsolved Problems in Geometry*. Problem Books in Mathematics. Unsolved Problems in Intuitive Mathematics, II. Springer, New York, 1994

[Guy 07] R. K. Guy, The lighthouse theorem, Morley & Malfatti – a budget of paradoxes. *Amer. Math. Monthly* **114** (2007), no. 2, 97-141.

[Moser 94] W. Moser, Review of *Unsolved Problems in Geometry* by H. T. Croft, K. J. Falconer and R. K. Guy, MR1316393 (95k:52001).