

The Math Olympian by Richard Hoshino Friesen Press, 2015

Reviewed by Marc Chamberland

The book opens with an atypical scene: a teenage girl waits nervously as she is about to participate in the Canadian Mathematical Olympiad. Moments later, the reader is presented with a set of five math problems. As someone who has delighted in math contest problems since I was a student, my attention was immediately ensnared. Indeed, I stopped reading and plunged into solving the problems! After some success, it dawned on me that the author probably didn't expect his readers to put down his novel, pull out a pad of paper and start doing math. Or did he?

This is the fictional story of a teenage girl named Bethany who, after seeing a news report about national and international math contests, realizes that there is a community of far-flung young people who, like her, unabashedly love mathematics. She wants to be one of them: a math olympian. From the outset, the context reveals that she will succeed, but her path is anything but clear. How does one become a math olympian? The author Richard Hoshino would know, having competed for Canada in the International Math Olympiad in 1996.

Hoshino has written a human story about Bethany's journey from being a naive girl who knows little about math or herself to someone who comes to know both much better. The chapters are structured around the five problems that Hoshino presents at the beginning of the book.

Hoshino does a masterful job of weaving the mathematics into the narrative. For each of the five main contest problems, he gently motivates the techniques that will be helpful, develops the components of the solution and lastly offers an economical, polished write-up. Hoshino makes the problem-solving process accessible by having the characters ask questions, explore and surmount dead ends, and express their mathematical epiphanies. We witness Bethany's

thought processes, an informative lesson for both students and teachers alike.

Don't be misled, however, into thinking that this is principally a problem-solving book in disguise. It is a novel detailing how an esteem-challenged teenager, through diligence, support and serendipity, becomes a star at math contests. One reads not only about how the world of mathematics is opened up to her, but also about Bethany's normal experiences as a young person, including the complexity of teenage relationships (with friends, enemies, lovers, coaches and parents), overcoming her anxieties, and overall, navigating the challenges of growing up.

Hoshino also does not limit the mathematics to the problems that are solved. While one encounters standard material—always presented in an engaging way—such as summing consecutive integers to produce the triangular numbers, telescoping series, the use of symmetry to solve algebraic equations and some classical planar geometry, the reader is also exposed to Newcomb's Law (usually called Benford's Law), the idea of groups via Rubik's Cube (even a mention of Burnside's Problem) and dimensional analysis. Hoshino presents mathematics as it should be seen for the uninitiated: a taste of fascinating mathematical ideas without too much symbolic clutter.

As a Canadian who has lived outside the country for almost 20 years, it was also a treat to "tour" Canada. Bethany is from Sydney, Nova Scotia, and, until her involvement with math contests, had never left her home province. She soon brings us along to Ottawa and for a longer visit to Hoshino's current province, British Columbia. It has been said that an author's first novel is usually autobiographical, and there is enough evidence to suggest that *The Math Olympian* is no exception. Hoshino takes us to his

current institution (Quest University), escorts us into the world of competitive math contests and, I suspect, shows us other elements of his personal life, all embodied in Bethany's experience. If you're looking for a young person's embrace of mathematics as she navigates the uneven road of growing up, you'll find an enjoyable read here. And some math problems to solve along the way

Marc Chamberlain is author of Single Digits—In Praise of Small Numbers, which was reviewed in CMS Notes, Volume 47, Number 6.

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