Mathematical Morsels: A Monthly Voyage of Problem-Solving Goodness

Chris Bolognese and Todd Edwards

In this column, we share a collection of rich tasks, those well-suited for multiple solution methods (see below). Email your solutions (links to YouTube and Screencast-o-matic videos are preferred) to OCTM.morsels@gmail.com. We’ll share selected solutions in the Spring issue.

OCTOBER: Find the sum of the whole numbers from 0 through 1,000,000,000, inclusive.

NOVEMBER: This year, Glenview Soccer League saw a 10% increase in its total participation over last year. There has been a 5% increase in the number of males and a 20% increase in the number of females. What fraction of the soccer league is now male?

DECEMBER: Annette, Bart, and Cassidy repeatedly take turns tossing a fair die in the given order (A, B, C, A, B, C, A, …). What is the probability that Cassidy will be the first one to toss a 5?

JANUARY: At 1:00 p.m., two hikers began walking, the first from Amityville to Bridgewater, the second from Bridgewater to Amityville along the same path. Each walked at a constant speed. They met at 4:00 p.m. The first hiker arrived at Bridgewater 2.5 hours before the second hiker arrived at Amityville. When did the second hiker get to Amityville?

FEBRUARY: In quadrilateral ABCD, the measure of angle B = the measure of angle C = 120°, AB = 3, BC = 4, and CD = 5. Find the area of ABCD.

MARCH: A bookshelf is 36 inches long and contains $n$ books each $w$ inches thick. If each book were half an inch thinner, the shelf would hold six more of the same book. What is $n/w$?

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