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SYNOPSIS

John Grant McLoughlin describes Jim Totten's math outreach activities in Jim's home province of BC, as seen through the eyes of Jim's colleagues. Anecdotes and stories about Jim abound, some of which also touch on Jim's love of sports and nature. The piece conveys the warmth and affection felt for Jim by those around him, and is an inspiring account of how Jim Totten reached people.

Honsberger muses about walking his puppy on a retractable leash, and from there he delves into a problem of a supertanker being circled by a patrol boat. Like a puppy on an invisible leash, the patrol boat gets ahead, cuts across, and falls behind the tanker, thus making a circuit. But how to do it with a given margin of safety? Honsberger shows us how, finishing with a lovely geometrical solution to the problem.

A history of this contest is presented with mention of the institutions and individuals that participated in its development. Jim Totten contributed greatly to getting this contest to where it is today, and the role that he played is highlighted.

Enjoy!

A bicentric quadrilateral is a convex quadrilateral that has both an incircle and a circumcircle. Here the author shows that a bicentric quadrilateral is uniquely determined by three of its sides tangent to a given circle, or by three of its vertices lying on a given circle.

Enjoy!!

If the surface of a cube can be unfolded into a plane so that two squares are related by a knight's move, then the knight can move from one of those squares to the other on the cube's surface. A knight's tour on the cube's surface can thus be given by labelling the starting square by "$\mathbf{1}$", then labelling the next square it jumps to by "$\mathbf{2}$", and so forth. One then asks if there are (open or closed) tours with magic properties, such as all rows and columns on the faces having a constant sum.

The author investigates such tours on the surfaces of small cubes, and implores the reader to improve upon his results.

Enjoy!!

320 Totten Problems: TOTTEN 01–TOTTEN 12

Here is a sample from this set of problems dedicated to the lasting memory of Jim Totten:

TOTTEN–08. *Proposed by Richard Hoshino, Government of Canada, Ottawa, ON.*

In triangle ABC suppose that $AB < AC$. Let D and M be the points on side BC for which AD is the angle bisector and AM is the median. Let F be on side AC so that AD is perpendicular to DF. Finally, let E be the intersection of AM and DF. Prove that $AB \cdot DE + AB \cdot DF = AC \cdot EF$.

. . . .

TOTTEN–08. *Proposé par Richard Hoshino, Gouvernement du Canada, Ottawa, ON.*

Supposons que dans le triangle ABC, on a $AB < AC$. Soit D et M les points sur le côté BC pour lesquels AD est la bissectrice et AM la médiane. Soit F le point sur le côté AC tel que AD soit perpendiculaire à DF. Soit finalement E l'intersection de AM et DF. Montrer que $AB \cdot DE + AB \cdot DF = AC \cdot EF$.

325 Problems: 3451–3462

This month's "free sample" is:

3459. *Proposed by Zafar Ahmed, BARC, Mumbai, India.*

Let a, b, c and p, q, r be positive real numbers. Prove that if $q^2 \le pr$ and $r^2 \le pq$, then

$$\frac{a}{pa+qb+rc} + \frac{b}{pb+qc+ra} + \frac{c}{pc+qa+rb} \le \frac{3}{p+q+r}.$$

When does equality hold?

. . . .

3459. *Proposé par Zafar Ahmed, BARC, Mumbai, Inde.*

Soit a, b, c et p, q, r des nombres réels positifs. Montrer que si $q^2 \le pr$ et $r^2 \le pq$, alors

$$\frac{a}{pa+qb+rc} + \frac{b}{pb+qc+ra} + \frac{c}{pc+qa+rb} \le \frac{3}{p+q+r}.$$

Quand y a-t-il égalité ?

330 Solutions: 2557, 3351–3362