

Volume 42, number 9: November / Novembre 2016

Published by:

Canadian Mathematical Society
Société mathématique du Canada
209 - 1725 St. Laurent Blvd.
Ottawa, ON K1G 3V4, Canada

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SYNOPSIS

- 373 The Contest Corner: No. 49 *John McLoughlin*
 373 The Contest Corner Problems: CC241–CC245
 376 The Contest Corner Solutions: CC123, CC125, CC152, CC191–CC195
- 385 The Olympiad Corner: No. 347 *Carmen Bruni*
 385 The Olympiad Corner Problems: OC301–OC305
 386 The Olympiad Corner Solutions: OC241–OC245
- 393 Focus On . . . : No. 24 *Michel Bataille*
- 398 Selected Problems from the Early Years of the Moscow Mathematical Olympiad
 Zhi Kin Loke
- 400 Problems: 4181–4190
- 405 Solutions: 4081–4090
- 415 Solvers and proposers index

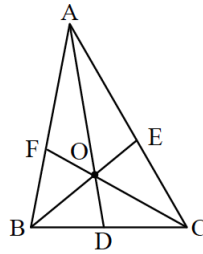
This month's "free sample" is:

4187. *Proposed by Avi Sigler and Moshe Stupel.*

A point P inside triangle ABC divides the three cevians AD, BE, CF through P into segments whose harmonic means are

$$K_A = \frac{2AP \cdot PD}{AP + PD}, \quad K_B = \frac{2BP \cdot PE}{BP + PE}, \quad K_C = \frac{2CP \cdot PF}{CP + PF}.$$

Prove that these three harmonic means, each associated with a cevian, are proportional to the sines of the angles $\angle CPE, \angle EPA, \angle APF$ formed between the other two cevians.



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4187. *Proposé par Avi Sigler et Moshe Stupel.*

Un point P à l'intérieur d'un triangle ABC divise les trois céviennes passant par P , AD, BE et CF , en segments dont les moyennes harmoniques sont

$$K_A = \frac{2AP \cdot PD}{AP + PD}, \quad K_B = \frac{2BP \cdot PE}{BP + PE}, \quad K_C = \frac{2CP \cdot PF}{CP + PF}.$$

Démontrer que ces trois moyennes harmoniques, chacune associée à une céviennne, sont proportionnelles aux sinus des angles $\angle CPE, \angle EPA, \angle APF$, formés par les deux autres céviennes.

