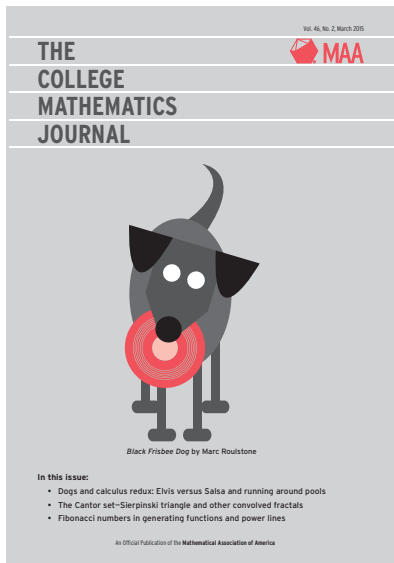# Teachers and the MAA
(Mathematical Association of America)

Brian Hopkins

Saint Peter's University & *The College Mathematics Journal*

PCMI Five Minute Short, July 2015

The College Mathematics Journal

Vol. 46, No. 2, March 2015

THE
COLLEGE
MATHEMATICS
JOURNAL

MAA

Black Frisbee Dog by Marc Roulstone

In this issue:
- Dogs and calculus redux: Elvis versus Salsa and running around pools
- The Cantor set–Sierpinski triangle and other convolved fractals
- Fibonacci numbers in generating functions and power lines

An Official Publication of the **Mathematical Association of America**

- Most accessible of the three MAA journals (most *Best Writing On Mathematics* selections)
- Student-authored papers, middle school 2015 Pólya
- Based on undergraduate curriculum, overlap with secondary topics
- Subscription by MAA membership, special teacher & school rates; JSTOR shelf http://about.jstor.org/rr

Classroom Capsules and Notes

http://www.maa.org/programs/faculty-and-departments/
classroom-capsules-and-notes

A free collection of over 600 Classroom Capsules, Proofs Without Words, Notes, and short articles organized by course and topic.

Browse Classroom Capsules and Notes

You can filter the list below by selecting a subject category from the drop-down list below, for example by selecting 'One-Variable Calculus'. Then click the **'APPLY'** button directly, or select a subcategory to further refine your results.

Displaying 1 - 10 of 224

Filter by subject

One–Variable Calculus

APPLY

- ✓ – Select –
- General Tools
- Background
- History of Calculus
- Graphers and Definitions
- Calculus Functions
- Continuity and Limits
- Differentiation: Calculation Rules
- Differentiation: Definition and Elementary Application
- Differentiation: General Applications
- Antidifferentiation
- Fundamental Theorem
- Integration: Motivation and Definition
- Integration Methods
- Integration: Applications
- Numerical Integration
- Differential Equations (for Calculus)
- Infinite Limits: Function Values and Integrals
- Function Approximation
- Theoretical Issues

Do Dogs Know Related Rates Ins
This capsule discusses the mathematics ... *e leap-off point chosen by the dog turned out to ones th* ...

Partial Fraction Decomposition b
This capsule introduces a straightfoward ... *pecific forms by long division. The obtained partial fra* ...
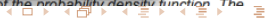
Do Dogs Know Calculus of Varia
This article generalizes a problem of dog ... *lus of variation.*

An Elegant Mode for Determining
A technique is introduced for the purpose of finding the relative maximum values of the probability density function. The

Browse Classroom Capsules and Notes

You can filter the list below by selecting a subject category from the drop-down list below, for example by selecting 'One-Variable Calculus'. Then click the **'APPLY'** button directly, or select a subcategory to further refine your results.

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Filter by subject

Sequences and Series ▼

– Select –
Series: General
Tests For Convergence and Divergence
Special Series: General
Special Series: p–series
Special Series: Alternating Series
Special Series: Geometric Series
Special Series: Harmonic Series
Sequences: General
Approximations: pi, e, natural logarithms
Special Sequences
Rearrangement

APPLY

A Geometric Look at Sequences
This capsule investigates the sequences ... ometric description of the terms, the author can obtain a rate of co...

Another Look at Some p-series
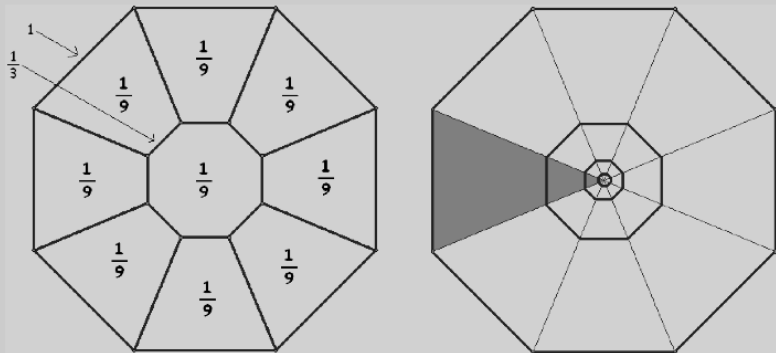*Certain p-series are the focus of this cap... ents "visualize" the convergence or divergence of the p-seri...*

Proof Without Words: Geometric Series Formula
The result $\frac{1}{n} + \frac{1}{n^2} + \frac{1}{n^3} + \cdots = \frac{1}{n-1}$ is illustrated for $n = 9$ and the remark is made that a similar construction shows the result...

Stirred, Not Shaken, by Stirling's Formula
In this note an elementary proof of Stirling's asymptotic formula for $n!$ is given.

Proof Without Words: Geometric Series Formula

$$\frac{1}{9} + \frac{1}{9^2} + \frac{1}{9^3} + \cdots = \frac{1}{8}$$

The general result $\frac{1}{N} + \frac{1}{N^2} + \frac{1}{N^3} + \cdots = \frac{1}{N-1}$ can be proved using this construction with a regular $(N-1)$-gon (or even a circle).

Other Teacher-MAA connections

- Meetings, national MathFest in late summer and Joint Mathematics Meetings in January, 29 sectional meetings
- American Mathematics Competition (AMC 8, AMC 10/12), new project to map problems to CCSS-M
  http://www.maa.org/math-competitions
- Books and DVDs for teachers (including Tom Garrity in three "debates" with Williams colleague Colin Adams)
  http://www.maa.org/programs/high-school-teachers/
  maa-publications-for-high-school-teachers
- Special Interest Groups (SIGMAAs)
  http://www.maa.org/community/sigmaas
  - Math Circles for Students and Teachers
  - Teaching Advanced High School Mathematics