

Parabola Volume 40, Issue 1 (2004)

Dear Readers

In the first article in this issue, by Michael Hirschhorn, you will learn about the harmonic series,

$$\sum_{k=1}^{\infty} \frac{1}{k}.$$

In this article you will find out how to prove that the series diverges and you will learn about one of mathematic's beautiful constants, γ , known as Euler's constant. The study of series is still a very active area of research in mathematics. For example a generalization of the harmonic series is the Riemann zeta function

$$\zeta(n) = \sum_{k=1}^{\infty} \frac{1}{k^n}$$

and in the year 2000 the Clay Institute offered a US\$1 million prize for proving certain properties about this function.

The second article in this issue, by Seán Stewart, is an excellent introduction to hyperexponentials (or *power towers*). These are numbers like, $2^{2^{2^{\dots}}}$. Once you have learnt a little about these numbers you might like to think about the hyperexponential series

$$\sum_{k=1}^{\infty} \frac{1}{k^k}.$$

The new problems in this issue were created by our new problems Editor, Tran Tanh. We are delighted to have him on board. There are some real brain teasers in here. Why not try a few. If you send in your solutions we may publish them in the next issue.

Happy 40th Birthday PARABOLA.

B.I. Henry
Editor