

Summary in English

Ulf Persson *Mikael Passare 1959-2011* (Swedish)

An obituary of a Swedish mathematician.

Lars Holst, *Om Eulers γ, Γ och $\pi^2/6$ ur sannolikhetsteoretisk synpunkt.* (Swedish).

The purpose of the article is to give derivations of classical identities involving Eulers Γ -function from the point of view of probability theory. Specifically it is shown by a simple probability argument that if X_i are independent stochastic variables with exponential distributions with normalized expectation 1 then the associated stochastic variables $\max(X_1, \dots, X_n)$ and $\sum_i X_i/i$ have the same distributions. This is exploited to show that the integral

$$\int_0^n y^t (1 - y/n)^{n-1} dy$$

can be expressed as

$$e^{-t(\sum_{k=1}^n 1/k - n \ln n)} \prod_{k=1}^n \frac{e^{t/k}}{1 + t/k}$$

from which follows in the limit as $n \rightarrow \infty$ the product formula for $\Gamma(1+t)$ given by

$$\lim_{n \rightarrow \infty} \frac{n! n^t}{(t+1) \dots (t+n)} = e^{-\gamma t} \prod_{k=1}^{\infty} \frac{e^{t/k}}{1 + t/k}$$

Finally by using generating functions he is able to derive the product formula for the sine function out of the Γ -function.

Pernille H. Petersen *What is the most important aspect of Smales horseshoe?*

The author concludes that the question is not well-posed. It depends on the context. She considers an example in celestial mechanics, due to Moser involving three bodies, one of negligible mass, and two others that instead pertain to the behavior of the Henón map. In those examples the horseshoe mapping is used as a tool and hence the fact that it is conjugate to a shift operator turns out to be the important thing in view of its application. Smale himself, however, denies this, and instead claims that it was its structural stability that was most important to him when he discovered while struggling to interpret into geometry a counterexample provided by Norman Levinson. However later on Smale has instead emphasized its chaotic nature as being the thing of interest, which further confirms her thesis on the dependence upon context in judging the importance of a result or a concept.

Ulf Persson *Bisecting segments of convex sets*

In this article segments bisecting an area of a convex region are studied. It turns out that in the middle of a convex figure which is not invariant under reflection through a suitable point, there appears a small region through every point of which multiple such segments can be drawn. The region is bounded by a ramification curve with many cusps, because every direction only appears once as a tangent.