

MathSnacks
GREAT MISTAKES
IN MATHEMATICS

by Marty Ross,
Burkard Polster,
and QED (the cat)

Pythagorean Punished



Around 500 BC, the Pythagorean Hippasus discovered irrational numbers, probably by considering ratios in the pentagram. Hippasus reportedly revealed this disturbing fact, which was a great mistake: he was supposedly drowned by his fellow Pythagoreans.

Fermat Fooled

$$2^{2^n} + 1$$

Pierre de Fermat noticed that the numbers $F_n = 2^{2^n} + 1$ for $n = 0, 1, 2, 3,$ and 4 are all prime. In 1659 he claimed to have found a proof that *all* the F_n are prime. In 1732 Leonhard Euler factored the number $F_5 = 641 \times 6700417$, and no other "Fermat primes" have yet been discovered.

Grandi Goof

$$1 - 1 + 1 - 1 + \dots = ???$$

In 1703, Guido Grandi considered the geometric sum $1 - X + X^2 - X^3 + \dots = 1/(1+X)$. Setting $X = 1$, he concluded that the resulting infinite sum is equal to $1/2$. The great Gottfried Leibniz later agreed.

Poisoned

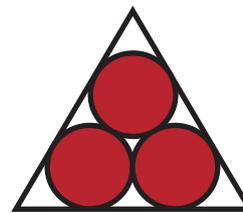


In 1894, The *American Mathematical Monthly* published an article by E. J. Goodwin, in which he claimed to have squared the circle. The article also implied a value for π of 3.2. Publication was evidence enough for the Lower House of Indiana to pass a bill, claiming ownership of the new mathematical truths.

**Ripper
Disclaimer**

This article represents the views of the writers – and is not an official MAV statement.

Malfatti Muddle



In 1803, Gian Francesco Malfatti asked the following question: how do we maximize the area of three non-overlapping circles placed inside a given triangle? Malfatti assumed the answer always involved having each circle tangent to two sides of the triangle and to the other two circles.

In 1930, H. Lob and H. W. Richmond noted that this was false for the simplest case, of an equilateral triangle.

In 1967, Michael Goldberg proved that Malfatti's suggestion *never* results in the maximal area.

Taxi Trouble



In the Term 4, 2008 issue of *Vinculum*, Burkard Polster and Marty Ross completely mangled the definition of a Taxicab Number. (QED the cat was entirely innocent). In fact, $T(n)$ is defined as the smallest number which can be written as the sum of two positive cubes in n different ways. In particular, $T(1)=2$. Not only did Burkard and Marty appear very careless, they completely destroyed their plans for new careers as taxi drivers. Silly people!

CAS Canetoad



In the early 21st Century, some people actually believed that a way to learn algebra was to have a machine do the algebra for you. Silly people!