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## Mathematicians Can Be Wrong

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# Mathematicians Can Be Wrong

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Here are some quotes from famous mathematicians. While mathematicians are trained to think perfectly logically, we see that they are still fallible.

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“Mathematics is the science of what is clear by itself.”  
--Karl Gustav Jacob Jacobi

**Then we can fire all teachers?**

“Calculus required continuity, and continuity was supposed to require the infinitely little, but nobody could discover what the infinitely little might be.”  
--Bertrand Russell

**In the 1950's, along came Abraham Robinson's Non-standard Analysis, to tell us once and for all what "infinitely little" means.**

“The fact that all Mathematics is Symbolic Logic is one of the greatest discoveries of our age, and when this fact has been established, the remainder of the principles of mathematics consists in the analysis of Symbolic Logic itself.”  
--Bertrand Russell

**Poor Bertrand, missed again! Kurt Goedel's famous Incompleteness Theorems of the 1930's exhibited statements which, while mathematically true, can never be proved logically.**

“Mathematics is the cheapest science. Unlike physics or chemistry, it does not require any expensive equipment. All one needs for mathematics is a pencil and paper.”  
--George Polya

**This was actually true until about 10 years ago.**

“How dare we speak of the laws of chance? Is not chance the antithesis of all law?”  
--Bertrand Russell

**The “laws of chance,” embodied in the theory of probability, is now so well-established that this statement seems terribly naïve.**

“Point set topology is a disease from which the human race will soon recover.”  
--Jules Henri Poincare

**This statement is nearly a century old; topology is now considered an important branch of mathematics, and lies on a foundation of point sets.**

*Reprinted from “Augarithms,” the weekly newsletter of the Department of Mathematics at Augsburg College.*