Undergraduate Math Club
Winter 2008
2nd floor Nesbitt Common Room
Thursday, January 31, 4:10-5:00pm
(free pizza and pop, as always)

Transcendental numbers

Prof. Djordje Milićević

Abstract

If your idea of a crazy real number is something like $\sqrt{11} + \sqrt[3]{\cos 20°}$, think again. Your random Joe Number is not likely to have square equal to 11 or some other integer. In fact it is also unlikely to be a sum (or some other concoction) of such beauties…

We first discuss the notion of transcendental numbers and why most numbers fall into this class. To recognize and construct transcendental numbers we will use Diophantine approximations. We will state the Lindemann-Weierstrass and Gelfond-Schneider theorems, often said to be among "the most beautiful theorems in mathematics", and talk about different types of transcendental numbers as well as some generalizations and open problems.

Also: what does all this stuff have to do with squaring the circle?