

The beauty of doing mathematics

Three public dialogues

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5 EXPLAINING THE OBJECT OF MATHS to show you what mathematics is, if you are not yourself in mathematics, I have difficulties which are analogous to those which I would have if I tried to tell an ancient Japanese, or a Hindu who never had contact with Western civilization, what a Beethoven symphony or a Chopin ballade is like.

18 INTUITION & GRAMMAR in general, new results are discovered by intuition, proofs are discovered by intuition, and finally they are written up according to a logical pattern. But don't confuse the two. It's the same as in literature: grammar and syntax are not literature. When you write a musical piece, you use notes, but the notes are not the music. To read a piece of music from the written text is not a substitute for hearing the piece in Carnegie Hall or elsewhere. Logic is the hygiene of language – and even then! “Under the bam, under the boo, under the bamboo tree...”, there isn't any grammar. The essential thing in Shakespeare, or Goethe, is not grammar or syntax. It is the poetry, the musical effect of words, poetic allusions, aesthetic impressionism, and many other things. But [whereas the beauty of poetry pales under translation, the beauty of mathematics is invariant under linguistic transformation.](#)