

## MathSnacks Futuramamath

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### Inflating Interest



The plot of *Futurama* is Phillip Fry waking up after being frozen for 1000 years. In the episode *A Fishful of Dollars*, Fry collects the compound interest on the 93 cents he left in his bank account, at an annual interest rate of 2.25%. The suggested balance is 4.3 billion dollars (which he blows on a can of anchovies). This is a very good approximation to the true value:

$$0.93 \times 1.0225^{1000} = \$ 4283508449.71$$

### Nonsense Numbers



Playfulness with numbers in *Futurama* include: the news Channel  $\sqrt{2}$ , the future counterpart of the famous U.S. highway Route 66 shown above; the lubricant  $\pi$ -In-One;  $\pi$ th Avenue; and  $\pi$ KEA, the *Futurama* evolution of the Swedish furniture chain. The number of the devil, 666, makes an appearance in binary number form. And even  $\aleph_1$ , the “first” infinite number, features in the name of a cinema complex.

### Ripper Reference

The Ultimate *Futurama* Math page: [usuarios.lycos.es/bbrp/mathematics.html](http://usuarios.lycos.es/bbrp/mathematics.html)



### Bizarre Bottles

A Möbius strip has only one side and only one edge. If you glue two Möbius strips together along their edges you get a Klein bottle. This surface still has only one side and it has no edges. In the episode *Insane in the mainframe*, we see three *Futurama* beers, including “Klein’s” bottled in Klein bottles. The other two beers, “Olde Fortran” and “St. Pauli Exclusion Principle Girl”, are still mathematical but come in ordinary bottles.

### Taxi Totals



The famous mathematician G. H. Hardy once complained to his colleague, the genius Ramanujan, that the number of the taxi he just took was really boring: 1729. Ramanujan disagreed, immediately recognizing that 1729 is the smallest integer that can be written as the sum of two positive cubes in two different ways:

$$1729 = 1^3 + 12^3 = 9^3 + 10^3$$

After this story, we call the smallest integer that can be written as the sum of two positive cubes in  $n$  distinct ways the  $n$ -th taxicab number,  $T(n)$ . So,  $T(1)=2$  and  $T(2)=1729$ . The third taxicab number is  $T(3)=87539319 = 167^3 + 436^3 = 228^3 + 423^3 = 255^3 + 414^3$ .  $T(4)$  and  $T(5)$  are also known, and  $T(6)$  was just discovered in March, 2008. No others are known.

In *Xmas Story*, we discover that Bender is son #1729. And, the spaceship *Nimbus* in *Love's Labours Lost in Space* is also 1729.  $T(3)$  appears as a taxi number in *Bender's Big Score*.

In *The Lesser of Two Evils*, Bender and Flexo discover that both their serial numbers are expressible as the sum of two cubes.

$$\text{Flexo: } 3370318 = 119^3 + 119^3$$

$$\text{Bender: } 2716057 = 952^3 + (-951)^3$$