The Universe of Discourse

Fri, 14 Aug 2015

A message to the aliens, part 3/23 (exponentiation)

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This is page 3 of the Cosmic Call message. An explanation follows.

Reminder: page 1 explained the ten digits:

And the equal sign F. Page 2 explained the four basic arithmetic operations and some associated notions:

 $\mathsf{E} \mathsf{E} \mathsf{D} \mathsf{O} \mathsf{D} \mathsf{D} \mathsf{F} \mathsf{C} \mathsf{C} \mathsf{F}$

This page, headed with the glyph for "mathematics" , explains notations for exponentiation and scientific notation.

(This notation was first used on page 1 in the mersenne prime .)

Exponentiation could be represented by an operator, but instead the authors have chosen to represent it by a superscripted position on the page, as is done in conventional mathematical notation. This saves space.

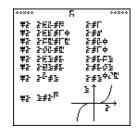
The top section of the page has small examples of exponentiation, including for example $5^3=125$:

There is a section that follows with powers of 10: $10^1=10, 10^2=100, 10^3=1000$, and more interestingly $10^{-2}=0.01$:

This is a lead-in to the next section, which expresses various quantities in scientific notation, which will recur frequently later on. For example, 0.045 can be written as 45×10^{-2} :

Finally, there is an offhand remark about the approximate value of the square root of 2:

The <u>next article</u> will discuss page 4, shown at right. (Click to enlarge.) Try to figure it out before then.



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