

# Re: The # Operator

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- *From:* [klewis@xxxxxxxxxxxxxxxxxx](mailto:klewis@xxxxxxxxxxxxxxxxxx) (Keith A. Lewis)
  - *Date:* Mon, 16 May 2005 15:11:40 +0000 (UTC)
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"Frank J. Lhota" <NOSPAM.lhota@xxxxxxxxxxxx> writes in article <W%5he.43\$E05.31@trndny09> dated Fri, 13 May 2005 18:05:42 GMT:

>I recall seeing this problem used as a means of testing software that does  
>Mathematical deductions. I thought it might also make for an entertaining  
>recreational algebra problem.

>

>We have a set  $U$  with a binary operation  $\#$ . It is not known if  $\#$  is  
>commutative, or if  $\#$  is associative. What is known is that  $\#$  satisfies the  
>following

>axioms:

>

>Axiom 1: For all  $x, y$  in  $U$ ,  $x \# (x \# y) = x \# (x \# x)$

So you can calculate  $x \# (x \# y)$  without knowing the value of  $y$ .

>Axiom 2: For all  $x, y, z$  in  $U$ ,  $(x \# y) \# (y \# z) = y$

Again, you can calculate  $(x \# y) \# (y \# z)$  without knowing  $x$  or  $z$ .

>if  $U$  is a finite set, what can we say about the cardinality of  $U$ ?

I'd say it's finite. :^) (What did you really mean to ask?)

—Keith Lewis [klewis@mitre.org](mailto:klewis@mitre.org)

The above may not (yet) represent the opinions of my employer.

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- *References:*

- ◆ **The # Operator**

- ◆ *From:* Frank J. Lhota

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Re: The # Operator

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