Re: Simple Question

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- *From*: "Bob Myers" <nospamplease@xxxxxxxxxxxxxxx>
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"Leo Meyer" <leomeyer_NO_SPAM_FOR_ME@xxxxxx> wrote in message news:efde0h$d0j$1@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx

> Imagine an infinitely large grid of resistors. In between two points, you
> have an infinite number of paths through the adjacent resistors, which are
> connected in series so we can treat them as one resistor.
> Now if you connect an infinite number of resistors in parallel, you will
> get zero ohms, no matter how large they are.

Nope; as was already mentioned, the number resulting from the sum of an infinite series doesn't have to itself be infinite (or zero). A more practical example, though, was already given − imagine an "infinite" sheet of copper (or better, some poorer conductor). Do you really expect to read exactly zero if you touch probes to its surface, some finite distance apart? Of course not. As you already noted in:

> True, if connecting the parallel resistors one by one, the drop in
> resistance will be very, very small − so small that you might not even
> notice with an ohmmeter. I like your analogy with the copper sheet, it's
> absolutely obvious that there is a finite resistance between two points an
> inch apart.

> On the other hand, this is a play on our inability to conceive "infinite".
> There is no such thing, so our experience is absolutely worthless.

Of course there IS such a thing as "infinite." How many points are there along even a finite line? How many points are there on a circle?

> If the resistance becomes lower (and it will), I see no reason why it

> should not go down to 0 if you take an *infinite* number of connected
> PCBs, or an infinitely large copper sheet, if you like.

Because each additional bit of area is NOT merely another
parallel−connected resistance − there's also an effective series
component to be considered.

Bob M.

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