

Re: Simple Question

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- *From:* Jonathan Kirwan <jkirwan@xxxxxxxxxxxxxxxxx>
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On Fri, 22 Sep 2006 04:26:20 +0100, Eeyore
<rabbitsfriendsandrelations@xxxxxxxxxxxxxxxxxxxxxxxxx> wrote:

Chris Foster wrote:

I have a simple question. This is a question that I was asked in a job interview.

If there existed an infinite two dimensional array of 1 ohm resistors, what is the resistance between two points separated by a knight's move (i.e. up two, over one, or over two and up one.....etc...)

Off the top of my head I think it's $\sqrt{5}$ ohms.

I don't think so. In terms of an exact calculation, it is $(2/\pi)$ for an "over one, up one" move. That's exact for an infinite grid as I understand the OP's question. The "over two, up one" has slightly higher resistance. But not so high as to be $\sqrt{5}$. That figure is wrong on its face. At a distance of "over two, up two" the exact answer is $(8/(3\pi))$, which sets an obvious upper limit. The actual figure for the knight's move must be between $(2/\pi)$ and $(8/(3\pi))$ or else between 0.6399 and 0.8488. And that is what I found when I did it using an entirely independent numerical method, from scratch.

Jon

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