Re: Golly, that was easy...

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- *Date*: Sun, 14 Jan 2007 22:47:57 −0500

On 14 Jan 2007 08:58:54 −0800, "Edward Green"
<spamspamspam3@xxxxxxxxxxx> wrote:

> I recall straining my mind over diagrams full of angles and perpendiculars, deriving (once) or trying to recover (many times) the addition formulas for cosine and sine. I'm not sure when I first discovered they were both contained, without any effort at all, in the statement exp[i(a+b)] = exp[ia]exp[ib].
>
> What makes the exponential function so unreasonably useful?

The efficiency of exp(ia) must be that it empowers the single scalar 'a' to keep track of both the sine and cosine of the angle. Any scalar b can be added to a, thus forming the addition of a second angle. Now expia * expib points to simple multiplication of the cartesian components e.g. sin(a) to get the result of adding two angles. Does that help?

John Polasek
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