Re: directional derivative,−−

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- *From*: The World Wide Wade <aderamey.addw@xxxxxxxxxxx>
- *Date*: Tue, 24 Apr 2007 10:12:51 −0700

In article <462E0BC2.5080309@xxxxxxxxx>, JEMebius <jemebius@xxxxxxxxx>
wrote:

> David C. Ullrich wrote:
>
> > On Tue, 24 Apr 2007 01:43:40 +0100, JEMebius <jemebius@xxxxxxxxx>
> > wrote:
> >
> > > What about the well−known rectangular circular half−cone,
> > > the graph of (x, y) −> z = sqrt(x^2 + y^2)?
> >
> > That has no directional derivative in _any_ (non−zero) direction
> > (at the origin, which is presumably the point you're talking about.)
> >
> > At least not according to what I've always thought was the
> > standard definition, as at
> >
> > http://en.wikipedia.org/wiki/Directional_derivative
>
> That is absolutely correct, if it is indeed standard to consider only entire
> lines through
> the point in question. Is it standard in university and college math
> curricula?

I think it is, one reason being you want partial derivatives to be the
same directional derivatives in the directions of the axes.

> When defining mathematical concepts I want to stay as closely as possible to
> everyday
> physical reality. So I identified "direction" with "half−line" rather than
> with "line".

I did the same thing.
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