

calc question ,

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- *From:* "quat" <spam@xxxxxxxx>
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I am trying to show:

$$g(x,y,z) = I(g(xt, yt, zt), t, 0, 1) + I([x \cdot g_x(xt, yt, zt) + y \cdot g_y(xt, yt, zt) + z \cdot g_z(xt, yt, zt)]t, t, 0, 1),$$

where $I(f, x, 0, 1)$ means integral of f wrt x from 0 to 1. The book says to differentiate $t \cdot g(xt, yt, zt)$ to see this. From the product rule I got:

$$(tg)' = g + tg'$$

But where to go from here? Also how to find g' ? Is $g(u) = g(u(x,y))$ now?