$f(z)$ is analytical in D were D is a connected and open domain in $\mathbb{C}$, let $D^* = \{z : \overline{z} \in D\}$. Define $g(z) = \overline{f(\overline{z})}$, show that $g(z)$ is analytical in D^*.

<u>work done so far:</u>

if $f(z)$ is analytical in D : satisfy CR-eq.

$\frac{\partial u}{\partial x} = \frac{\partial v}{\partial y}$

and

$\frac{\partial u}{\partial y} = -\frac{\partial v}{\partial x}$

$\overline{f(\overline{z})} = u(\overline{z}) - iv(\overline{z})$

I want to show that:

$\frac{\partial u(\overline{z})}{\partial x} = -\frac{\partial v(\overline{z})}{\partial y}$

and:

$\frac{\partial u(\overline{z})}{\partial y} = \frac{\partial v(\overline{z})}{\partial x}$

reverse sign, because i have:

$\frac{\partial u}{\partial x} = \frac{\partial(-v)}{\partial y}$

$\frac{\partial u}{\partial y} = -\frac{\partial(-v)}{\partial x}$