$f(z)=z \in H(\mathbb{C})$, zatem $\sum_{n=0}^{\infty}\frac{z^n}{n!}\in H(\mathbb{C})$,

podobnie $\sin(z)=\frac{e^{iz}-e^{-iz}}{2i}\in H(\mathbb{C})$

i $\cos(z)=\frac{e^{iz}+e^{-iz}}{2}\in H(\mathbb{C})$

$$\frac{\partial}{\partial z}e^z=\frac{\partial}{\partial z}\sum_{n=0}^{\infty}\frac{z^n}{n!}=\sum_{n=1}^{\infty}\frac{nz^{n-1}}{n!}=\sum_{n=1}^{\infty}\frac{z^{n-1}}{(n-1)!}=\sum_{k=0}^{\infty}\frac{z^k}{k!}=e^z$$

$$\frac{\partial}{\partial z}\sin(z)=\frac{\partial}{\partial z}\frac{e^{iz}-e^{-iz}}{2i}=\frac{ie^{iz}+ie^{-iz}}{2i}=\frac{e^{iz}+e^{-iz}}{2}=\cos(z)$$

$$\frac{\partial}{\partial z}\cos(z)=\frac{\partial}{\partial z}\frac{e^{iz}+e^{-iz}}{2}=\frac{ie^{iz}-ie^{-iz}}{2}=\frac{i(e^{iz}-e^{-iz})}{2}=-\frac{e^{iz}-e^{-iz}}{2i}=-\sin(z)$$