1. Recall that $\cosh(x) = \frac{e^x + e^{-x}}{2}$ and $\sinh(x) = \frac{e^x - e^{-x}}{2}$.

a. Find the Taylor series of these two functions about 0.

b. Show that for both of these functions, the Taylor series about 0 converges to the function for all $x$. 