Condition Number of e^x

Condition Number = $\left. xf'(x) \right/ f(x)$

In the case of $f(x) = e^x$, $f'(x) = e^x$

Therefore, the condition number is $\frac{xe^x}{e^x} = \boldsymbol{x}$

When the condition number is 10^8, x is also 10^8. Hence, $f(x) = e^{10^8} \cong 10^{0.43*10^8}$.

This means that $f(x)$ has roughly 10^8 digits.