If $a_n = \dfrac{x^{n+1}}{4n!}$, then $\lim\limits_{n\to\infty}\left|\dfrac{a_{n+1}}{a_n}\right| = \lim\limits_{n\to\infty}\left|\dfrac{x^{n+2}}{4(n+1)!}\cdot\dfrac{4n!}{x^{n+1}}\right|$
$= \lim\limits_{n\to\infty}\left|\dfrac{x}{n+1}\right| = |x|\lim\limits_{n\to\infty}\dfrac{1}{n+1} = |x|\cdot 0 = 0 < 1$ for *all* real x .
So, by the Ratio Test, $R = \infty$ and $I = (-\infty, \infty)$.