Mizzou AMS Student Chapter

Problem of the Week

Week 3

For $n = 0, 1, 2, \ldots$, let $f_n(x)$ be defined by the equation

$$e^x f_n(x) = \sum_{k=1}^{\infty} \frac{k^n x^k}{(k-1)!}.$$

Show that $f_n(x)$ is a polynomial of degree $n+1$ with integer coefficients.

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