Use multiplication or division of power series to find the first three nonzero terms in the Maclaurin series for the given function.

$$e^x \ln\left(1-\frac{x}{5}\right) \approx v+z+y+....$$

$$\ln\left(1-\frac{x}{5}\right) = \int \frac{-dx}{5(1-\frac{x}{5})} = -\frac{1}{5}\sum_{n=0}^{\infty}\left(\frac{x}{5}\right)^n = -\sum_{n=0}^{\infty}\left(\frac{x}{5}\right)^{n+1}\frac{1}{(n+1)}$$

or:

$$\sum_{n=0}^{\infty}\frac{f^{(n)}(0)}{n!}x^n = \sum_{n=0}^{\infty}\frac{\frac{(-1)(n-1)!}{5^n}}{n!}(x)^n = \ln(1)+\sum_{n=1}^{\infty}\frac{(-1)}{5^n * n}x^n = \sum_{n=0}^{\infty}\frac{(-1)x^{n+1}}{5^{n+1}(n+1)}$$

$$f^{(0)}(x) = \ln\left(1-\frac{x}{5}\right) \to f^{(0)}(0) = \ln(1) = 0$$

$$f^{(1)}(x) = \frac{-1}{5-x} \to f^{(1)}(0) = \frac{-1}{5}$$

$$f^{(2)}(x) = \frac{-1}{(5-x)^2} \to f^{(2)}(0) = \frac{-1}{5^2} = -\frac{1}{25}$$

$$f^{(3)}(x) = \frac{-2}{(5-x)^3} \to f^{(3)}(0) = \frac{-2}{5^3} = \frac{-2}{125}$$

$$f^{(4)}(x) = \frac{-2*3}{(5-x)^4} \to f^{(4)}(0) = \frac{-2*3}{5^4}$$

$$f^{(n)}(x) = \frac{(-1)*(n-1)!}{(5-x)^n} \to f^{(n)}(0) = \frac{(-1)(n-1)!}{5^n}$$

$$\left(\sum_{n=0}^{\infty}\frac{x^n}{n!}\right)\left(-\sum_{n=0}^{\infty}\left(\frac{x}{5}\right)^{n+1}\frac{1}{(n+1)}\right) =$$

$$\left(1+x+\frac{x^2}{2!}+\frac{x^3}{3!}+....\right)\left(-\frac{x}{5*1}-\frac{x^2}{5^2*2}-\frac{x^3}{5^3*3}-\frac{x^4}{5^4*4}-....\right)$$

$$\left(1+x+\frac{x^2}{2!}+\frac{x^3}{3!}+....\right)\left(-\frac{x}{5}-\frac{x^2}{50}-\frac{x^3}{375}-\frac{x^4}{2500}-....\right)$$

$$1+x+\frac{x^2}{2!}+\frac{x^3}{3!}+...$$

$$* \quad -\frac{x}{5}-\frac{x^2}{50}-\frac{x^3}{375}+...$$

$$-\frac{x}{5}-\frac{x^2}{5}-\frac{x^3}{10}-\frac{x^4}{30}$$

$$+ \quad -\frac{x^2}{50}-\frac{x^3}{50}-\frac{x^4}{50*2!}-\frac{x^5}{50*3!}$$

$$-\frac{x}{5}-\frac{11x^2}{50}-\frac{3x^3}{25}+.....$$