PROBLEM OF THE WEEK #2
(Fall 2017)

Let $\{x_0, x_1, x_2, \ldots\}$ be the sequence such that $x_0 = 1$ and (for $n \geq 0$)

$$x_{n+1} = \ln\left(e^{x_n} - x_n\right).$$

Prove that the infinite series $\displaystyle\sum_{k=0}^{\infty} x_k$ converges, and find its sum.

[Please fully explain your answer.]

Solutions should be submitted to Cinda Furry, in Gardner Hall 435, by 4:00 P.M. on Wednesday, September 27, 2017.

Every week, the best solution submitted earns a \$10 Platteville gift certificate; the top scorer each semester also wins a cash award. Good luck!
You can always see the Problem of the Week (and complete rules) online at:

`http://uwpmath.weebly.com/`