Correction to: A Closed-Form Solution to the Geometric Goat Problem

Ingo Ullisch

Correction to: The Mathematical Intelligencer
https://doi.org/10.1007/s00283-020-09966-0

"A Closed-Form Solution to the Geometric Goat Problem" was published in the fall 2020 issue of the *Mathematical Intelligencer*. An attentive reader has pointed out an error in the statement of Theorem 2: the domain of integration in each of the four integrals should be $|z - 3\pi/4| = \pi/4$, not $|z - 3\pi/8| = \pi/4$. Here is the correct statement of the theorem:

Theorem 2. *Let z_0 denote the unique zero of the entire function $f(z) = \sin z - z\cos z - \pi/2$ inside the interval $]\pi/2, \pi[$.*

1. *We have*

$$z_0 = \frac{\displaystyle\oint_{|z-3\pi/4|=\pi/4} z\,dz/(\sin z - z\cos z - \pi/2)}{\displaystyle\oint_{|z-3\pi/4|=\pi/4} dz/(\sin z - z\cos z - \pi/2)}.$$

2. *In the situation of the goat problem, the radius R of k_2 is given by*

$$R = 2r\cos\left(\frac{1}{2}\,\frac{\displaystyle\oint_{|z-3\pi/4|=\pi/4} z\,dz/(\sin z - z\cos z - \pi/2)}{\displaystyle\oint_{|z-3\pi/4|=\pi/4} dz/(\sin z - z\cos z - \pi/2)}\right).$$

The original article can be found online at https://doi.org/10.1007/s00283-020-09966-0.

Ingo Ullisch, Münster, Germany. E-mail: kubbeldieratz@gmx.de

https://doi.org/10.1007/s00283-023-10299-x