Challenge Problem 8

(due April 17, along with Challenge Problem 7)
Math 130 *Kovitz* Spring 2018

Believe it or not, there is a real number—an input to log—with the property that taking the log of the number 1/2 greater gives the same result as adding 1/2 to the log of the number.

What's that number?

Find an exact answer in terms of square roots and logs.

Now find a three-place decimal for the number and verify on a calculator that it solves the problem with three-decimal-place accuracy.

Note: The base is assumed to be 10.

The number 1/2 greater means the result of adding 1/2 to the number.