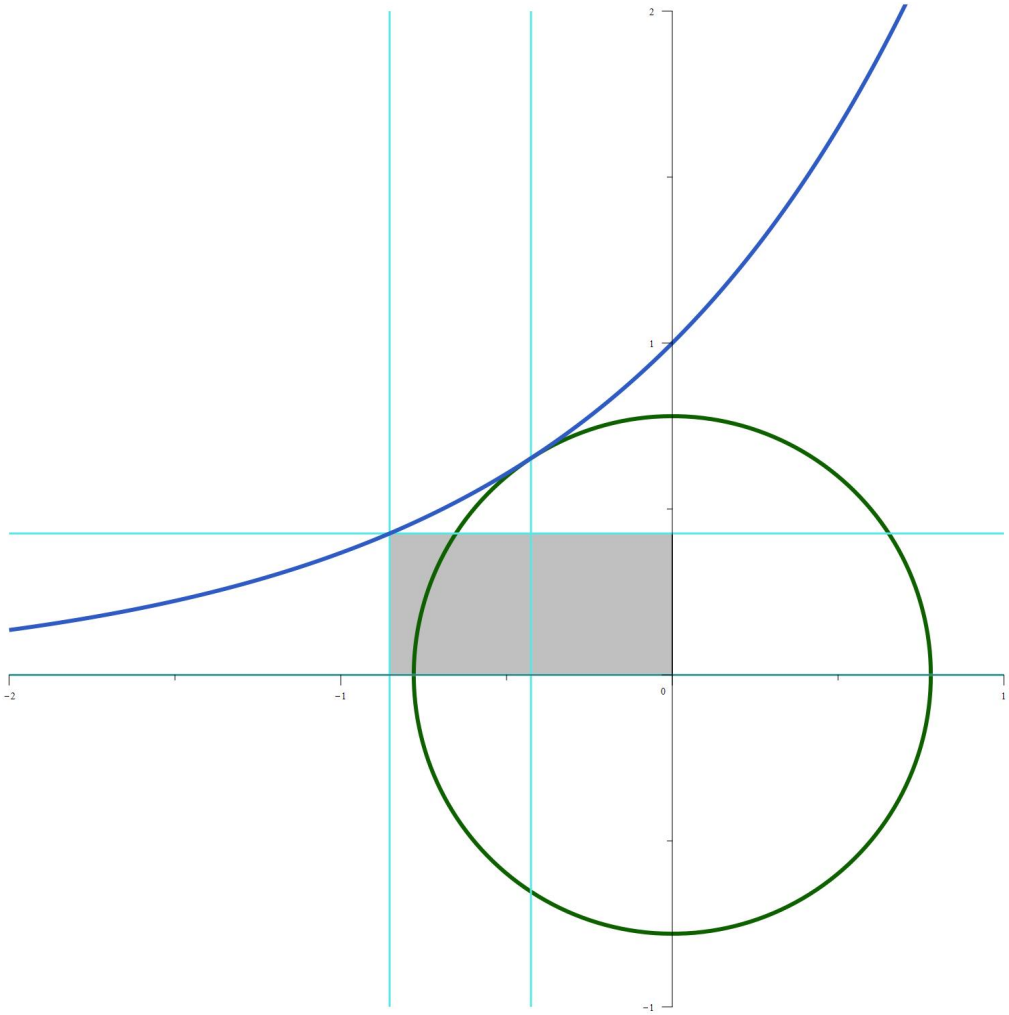
View on elementary functions through a Lambert W window



The blue curve is the graph of the exponential function. The green curve is a circle, whose centre is the origin. The point where they touch is the point on the exponential curve that is closest to the origin.

In mathematics, the exponential function as well as the trigonometric functions (the sine and cosine functions can be used to parametrise a circle) are called **elementary** functions. The Lambert W function is a **special** function. That means that we cannot express the function in terms of elementary functions.

The x-coordinate of the touching point is W(2)/2, half the value of the Lambert W function at 2.

Incidentally, the largest rectangle that fits in the second quadrant under the exponential curve, whose width is twice its height, also happens to have height W(2)/2.