How to “grow” a golden rectangle

Suppose we start with an arbitrary rectangle of height $a$ and width $b$ with $a \geq b$. If we repeatedly enlarge the rectangle by adding on a square to its longer side, we obtain rectangles which rather quickly resemble golden rectangles:

If we denote by $x = \frac{a}{b}$ the ratio before the enlargement, then afterwards we have a ratio of $\frac{a+b}{a} = 1 + \frac{b}{a} = 1 + \frac{1}{x}$. That is, the ratio $x$ underwent the transformation $f(x) = 1 + \frac{1}{x}$.

1. Start with a 6 by 2 rectangle and carry out four of the above steps
   (a) on Geometer’s Sketchpad;
   (b) by calculation;
   (c) by following the values on the graph of $f(x) = 1 + \frac{1}{x}$ below.