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10.1 Geometry

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An Illustration of the Fibonacci Sequence

Create an image in Geogebra based on a spiral layout of the Fibonacci sequence, as shown, for example, in Figure 1. Copy it to MS Word and write a short exposition. You should show the recursive formula for the sequence (use the Equation Editor).

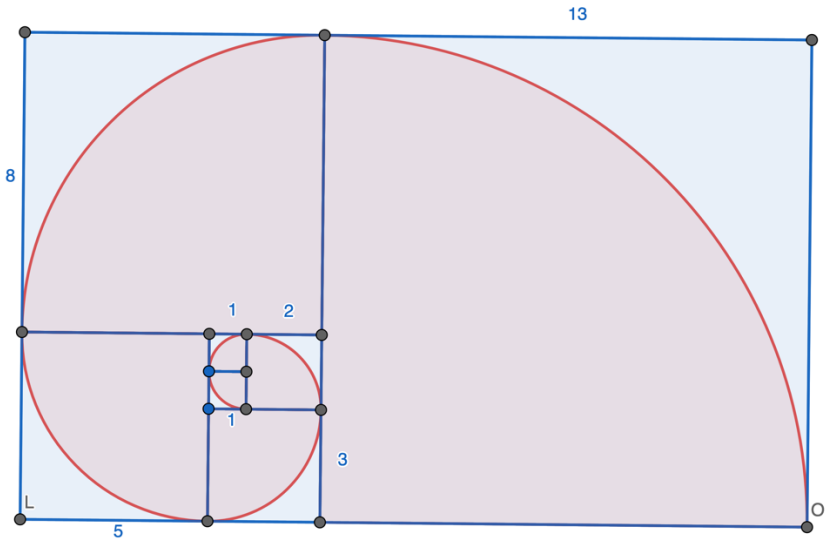

Figure 1: Fibonacci sequence depicted as squares laid out in a spiral pattern

The first two terms of the sequence are both one. Consecutive terms are the sum of the prior two terms: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, …. Defined algebraically, the sequence is specified as $a_1 = 1$, $a_2 = 1$, and $a_{n+2} = a_{n+1} + a_n$.

As a further exploration, consider the ratio of consecutive terms in the sequence. At the limit, they go to the Golden Mean.