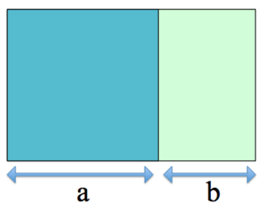
1 The Golden Ratio

The golden ratio is an important value for artists and architects. Usually represented by the Greek letter phi (φ) and equal to $\frac{1+\sqrt{5}}{2}$, or approximately 1.618, the ratio has fascinated great mathematicians such as Euclid, Pythagoras, and Kepler. But what exactly is the golden ratio?

First off, let's derive the golden ratio.



In this rectangle, the blue square will be referred to as the square, the green rectangle will be referred to as the small rectangle, and the whole figure will be referred to as the large rectangle.

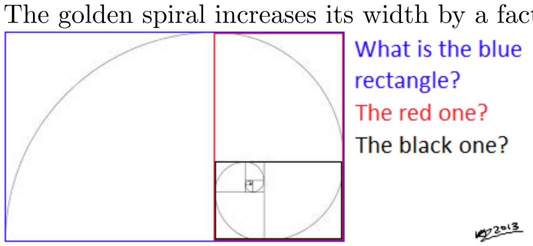
1. Find the ratio of the long side of the large rectangle to the long side of the small rectangle. $\left(\frac{\text{long side of large rectangle}}{\text{long side of small rectangle}}\right)$
2. Find the ratio of the short side of the large rectangle to the short side of the small rectangle. $\left(\frac{\text{short side of large rectangle}}{\text{short side of small rectangle}}\right)$
3. Now set these 2 ratios equal to each other. This represents the golden ratio.

2 Drawing Golden Rectangles

Use this space to draw some golden rectangles that will be demonstrated on the board.

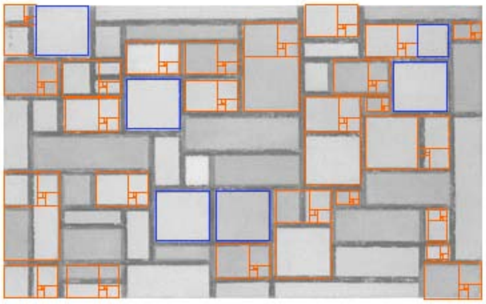
3 The Golden Spiral

The golden spiral increases its width by a factor of the golden ratio.

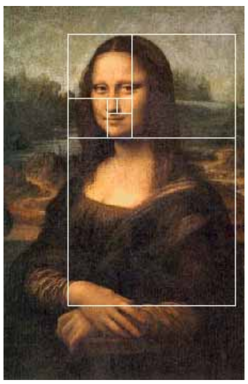


4 The Golden Ratio in Paintings and Architecture

Which is your favorite rectangle?



The golden rectangle is believed to be the most visually appealing.



The Mona Lisa demonstrates the golden ratio.

5 The Golden Ratio in Everyday Life

Find the ratio of the sides by dividing the larger dimension by the smaller dimension. What do you notice?

1. A standard piece of binder paper: 8.5 x 11
2. A standard 3 x 5 index card
3. A standard 54 m x 68 mm credit card
4. The 5.5 in. x 3.4 in. iPod classic

6 Works Cited

File:Fibonacci Spiral.svg. N.d. Photograph. Wikipedia. Wikimedia Foundation, 17 Nov. 2013. Web. 02 Dec. 2013.

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