Golden Section:

As designers we realize that visual communication is universal. Pythagoras was one of the first to hypothesize that there are certain underlying laws, order and harmony, in nature that directly relates to he science of numbers and proportions.

These numbers and proportions are found in nature, therefore they are universal and pleasing to the human eye. This makes these proportions a great tool for designers to effectively and quickly communicate with their audience.

Discovered by mathematicians. Scribes and typographers have been shaping visual space for thousands of years.

Used in manuscripts and books from the Renaissance, China, early Egypt, pre Columbian Mexico and ancient Rome.

Based on the ratio a:b = b:(a+b)
Mathematicians found that only one proportion works—1:1.618
This ratio occurs so frequently in nature that it cannot be a coincidence or random.

As graphic designers, we can use this ratio to determine page size, margin size, image sizes and so on.

If you know one page length you want, just multiply that by 1.618 and you will have your other side length.

For example: If I want my book to be at least 5 inches wide, I will multiply 5 by 1.618 and get 8.09. So, my page would be 5X8 inches according to the Golden Ratio

Here's how it works:

(1) A box with the ratio 1:1.618

(2) If you make a perfect square out of this box, what you are left over with is another golden ration.

(3) If you continue to break the ratio into smaller ratios, you will eventually have the framework to draw the golden spiral.

(4) Golden spiral
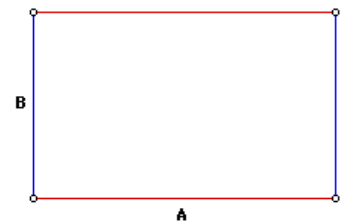
$$\frac{A}{B} = 1.618$$
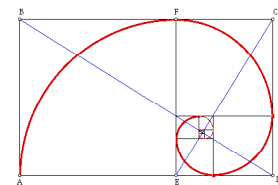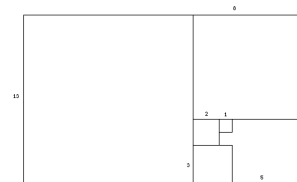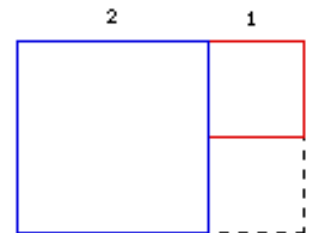
Fibonacci:

Leonardo Fibonacci was a mathematician who studied series of numbers in order to explain the world around us. He asked the question, "What would happen if nothing dies and everything reproduces?" He conducted an experiment using rabbits, due to their rapid breeding habits.

What he found was a series of numbers that appear in nature over and over again. He took one rabbit alone to begin with. This yields (0+1) then he took one rabbit and one rabbit and bred them, (1+1=2) The series continues by adding the previous number to the new number in the series.

0, 1, 1, 2, 3, 5, 8, 13, 21…

The beauty of this series is when plotted out, it forms the golden spiral. So, the Golden Spiral and Fibonacci series have a common demonator…1.618.

As graphic designers, we can use these numbers to our advantage. When choosing type sizes, you can use this series to find a set of numbers more naturally pleasing to the human eye. You can begin your series with any number you would like. Here is an example.

Folio (6 pt.)

Body Copy (9 pt.)

Byline 15 pt.)

Headline (24 pt.)