

# The Golden Section & Dynamic Root Rectangles

## Dynamic Root Rectangles:

A series of rectangles all derived from the diagonals of the square.

Each root rectangle has its own proportions that remain constant.

## Construction:

Draw a 2" x 2" square and extend the top and base lines to the right.

Draw a diagonal from the lower left to the upper right.

This is called the **baroque diagonal** (positive diagonal)

The **sinister diagonal** goes from the upper left to lower right. (negative slope)

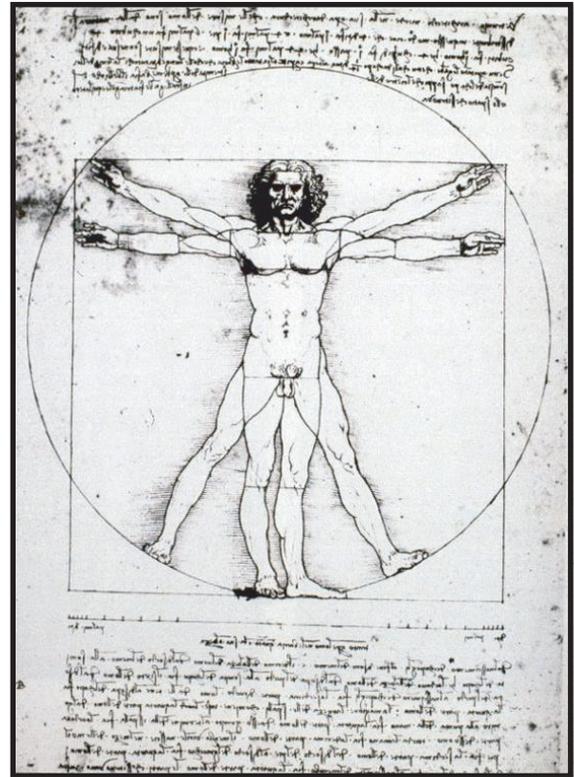
Put your compass point at the lower left corner, and the pencil point in the upper right corner.

Swing the arc down, and extend a vertical line to establish the root 2 rectangle.

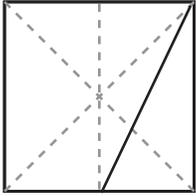
Repeat this process from the baroque diagonal of the root 2, to create a root 3 rectangle. As you continue this process, the arcs are going to get progressively smaller.

A root 4 rectangle was used by Picasso and Frank Lloyd Wright because of its dynamic proportions.

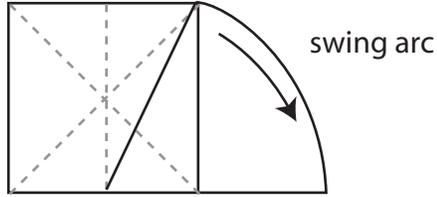
Keep going until you reach the root 5 rectangle. Do not construct any rectangles larger than a root 5, as proportions begin to break down.



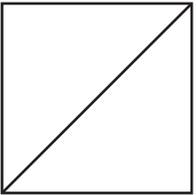
# Construction of Golden Section and Root Rectangles



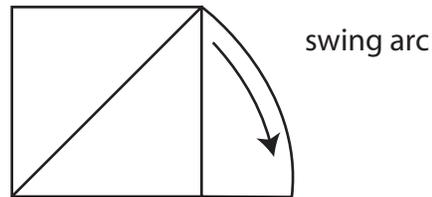
square



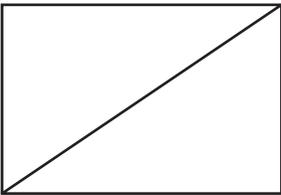
Phi Rectangle - Golden



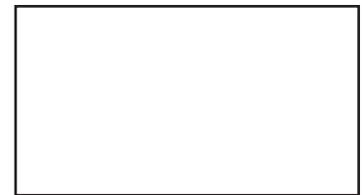
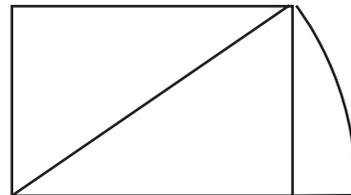
square



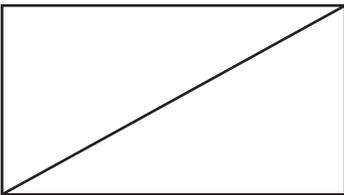
root 2



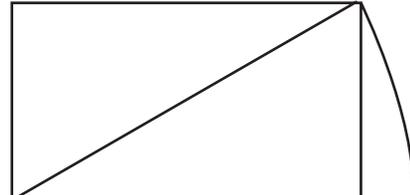
root 2



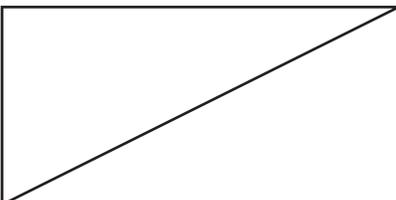
root 3



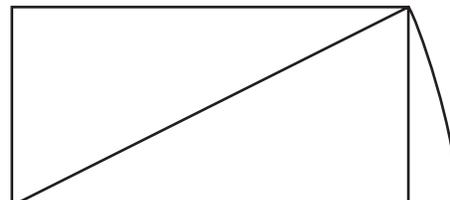
root 3



root 4

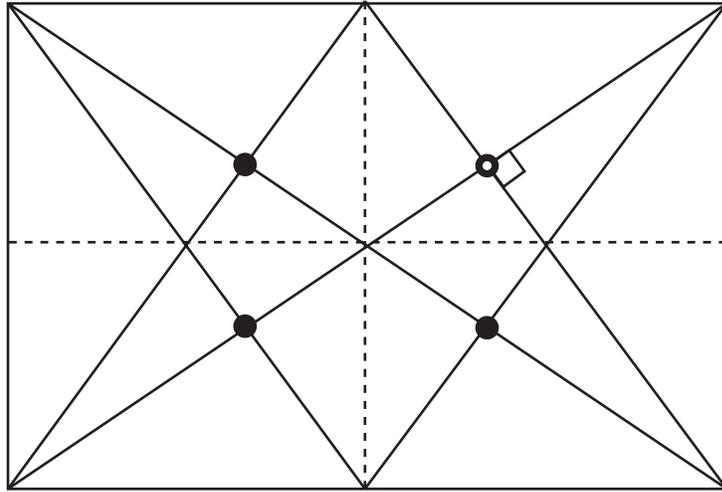


root 4

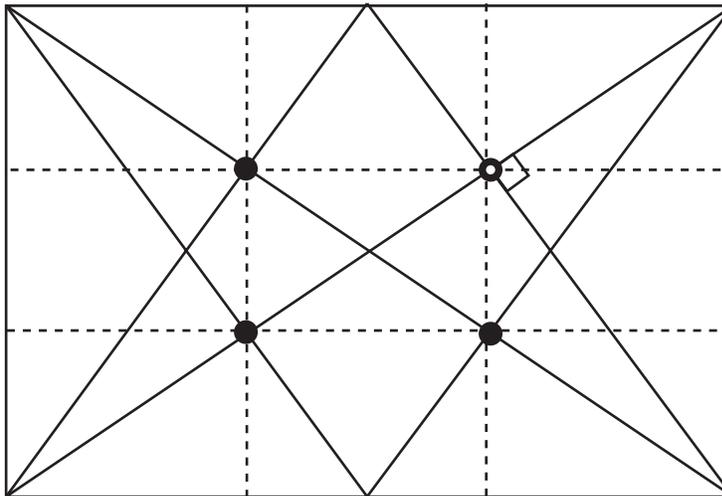


root 5

## Armature of a Root 2 Rectangle (theme of 2)



## Armature of a Root 2 Rectangle (theme of 3)



The **armature** of a rectangle helps to locate important diagonals, horizontals and verticals. The reference points where these lines cross each other help to establish harmony and unity.

### Construction:

Draw a root 2 rectangle based on a 2" square

Establish the baroque diagonal from the lower left corner.

From the bottom right corner, draw a diagonal that crosses the baroque diagonal at a 90 degree angle.

This is called the **reciprocal**. Drop a vertical where the reciprocal meets the top of the rectangle.

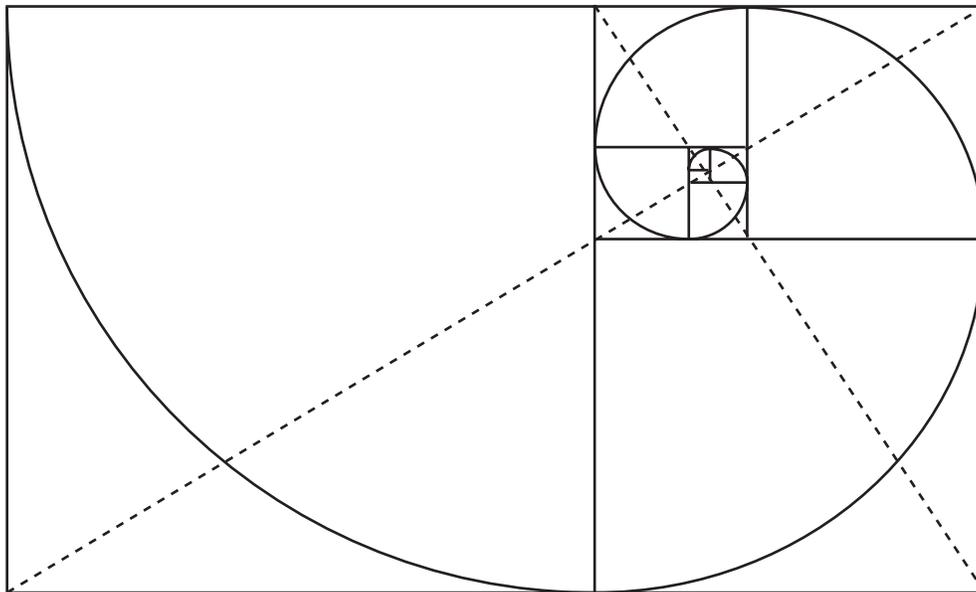
This should divide the rectangle exactly in half.

Where the reciprocal crosses the baroque diagonal is called the **eye**. This is the most important part of the rectangle. There will be a total of four eyes. Dominant design features are placed on or radiate from these points. A **grid** can be created from intersecting points that divided the rectangle proportionately.

# The Phi Rectangle - The Rectangle of Whirling Squares

## Construction:

Draw a 2" x 2" square and extend the top and base lines to the right. Locate the center of the base of the square using intersecting diagonals. From the center of the base, draw a diagonal to the upper right corner, and use your compass to swing the arc. Complete the rectangle at the base of the arc. The baroque diagonal and reciprocal will provide the major intersections to create the whirling squares.



The spiraling curve is created by the continuing projection of the Golden Section, and may be drawn with the aid of a compass. The inside corner of the square locates the compass point, which scribes an arc from corner to corner. This line continued into the next square with a new compass point located on the inside center corner of that square. The process continues from square to square. The same spiral can be created by plotting the numbers of the Fibonacci sequence.