

Transcription of <https://m.youtube.com/watch?v=2VtYyHx77cs>

Hello, Let's draw a golden spiral given the square which can be seen here on the screen, the first step is to draw a golden rectangle from the square. The first step we are going to calculate the mid point of the base of the square, CD, we're going to draw the perpendicular bisector of the line segment CD, to do this, perpendicular bisector first we must draw two arcs which are centered on both ends of the line segment CD, as can be seen here on the video, these arcs are going to have the same radius, these arcs intersect at two points which we will join to obtain a perpendicular bisector so that we obtain a mid point M. The next step is to join a midpoint M to point A, on the square. With the compass set on M and radius MA, we are going to scribe an arc to the right which passes the base of our square, as can be seen here, therefore intersecting the prolongation of the base of our square, as can be seen in the video, this point will be the third vertex of a golden rectangle. To find the fourth vertex of the golden rectangle we must prolongate the top side of the square BA, and draw a perpendicular vertical line from the third vertex and where these lines intersect will be the fourth vertex of a golden rectangle. So now that we have a golden rectangle, I must remind you about a very important property of golden rectangles, if we draw a square on one side of a golden rectangle the remaining rectangle is also a golden rectangle, which can be seen here in our example, the golden rectangle BCEF, and a smaller golden rectangle AFED, so to continue drawing the golden spiral we must continue drawing squares in previously calculated golden rectangle, to do this set your compass on point E and radius ED, we will scribe an arc to the right to intersect the line EF, from this new point we draw a horizontal line until it intersects with the line DA, thus forming a second square and a third golden rectangle. Now I'm going to repeat this process by setting my compass on point F to transport the length of the side as can be seen here, and now we have a third square and our fourth golden rectangle. (In) each of these squares are going to contain an individual piece of our final golden spiral, so let's continue the process as can be seen each subsequent square and golden rectangle become smaller and smaller, in theory this process can continue to get smaller and smaller to infinity, but given the instruments that we are using today, we will eventually begin to lose accuracy. So for the moment we will continue as much as possible. Here we have another golden square and golden rectangle. So continuing our process we will get a sixth square, as can be seen here, and our seventh golden rectangle. Finally let's draw one more as I can't continue with accuracy behind this point. Our final square. Now that we have seven squares we're going to name all of their vertices, and now we can draw a golden spiral by drawing individual arcs in each of our seven squares, we will start with

the first square, so setting the compass on point A, and radius AB, we can scribe an arc as far as point D, this will be the first piece of our spiral, now our compass is set on point H, we will draw a spiral as far as point G, as can be seen, now our compass is set on point J we scribe an arc to the left from G to I, now our compass is on L from I to K, as can be seen in the video, the tangential point of the two consecutive arcs are always on the same line as their center points. so continuing with the compass on P from K to N, now the compass is set on Q, we scribe an arc from point N to R. And finally, with the compass in the center from R to S, we have a golden spiral. The very last step is we are going to workout the center point of a golden spiral, to do this we are going to draw two diagonal lines from our first two golden rectangles CF and AE, where these two lines intersect, this will be the center of our spiral, which we will call point O, I hope this video has helped you, thank you very much. See you next time.