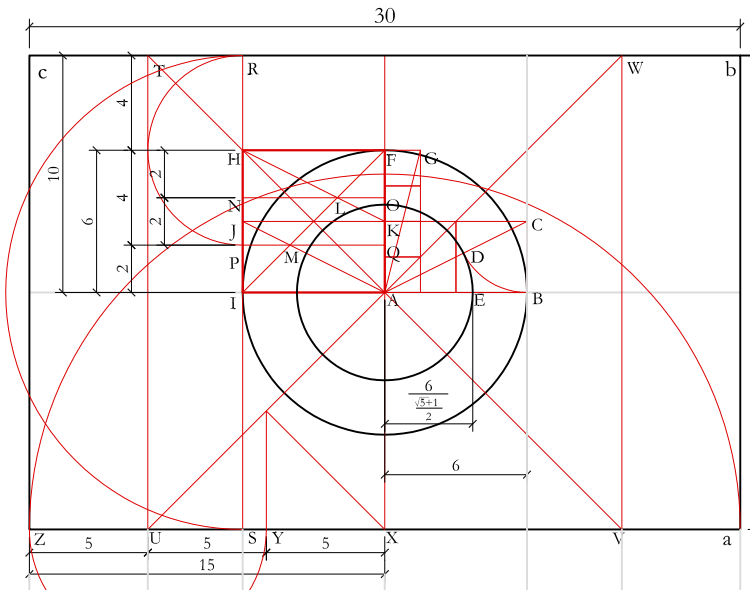
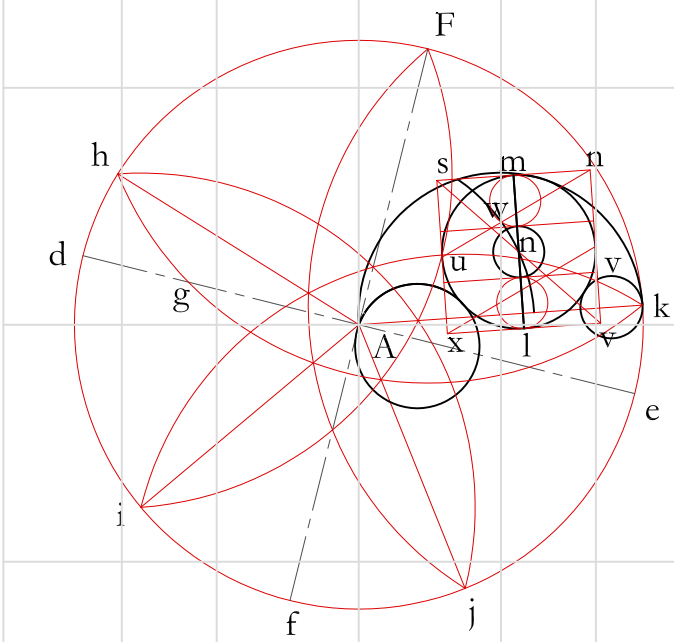


THE BANNER, IN THE PROPORTION OF 3:2, IS RED WITH A STYLIZED, WHITE, FIVE-PETAL "BAUHINIA" FLOWER IN THE CENTER. THE FLOWER FITS INTO A CIRCLE THAT IS 6 /10 OF THE WIDTH OF THE BANNER. THE AXIS OF THE FLOWER IS SLIGHTLY OFFSET AND THE PETALS, SPREADING UNIFORMLY AROUND A CENTER, APPEAR TO ROTATE IN A CLOCKWISE DIRECTION. EACH PETAL CONTAINS A FIVE POINTED STAR AND A CURVING STAMEN- LIKE LINE ROTATING FROM THE CENTER TOWARD EACH STAR.

To establish the overall size of the flower, draw the circle **A** with a radius representing six units. **To locate the rotating stars**, draw a concentric circle with a radius equal to the "golden mean" of the original radius: On line **AB**, draw two squares with a diagonal **AC**. With **C** as the center, draw arc **BD**, and with **A** as the center, draw arc **AE**, locating the point of the "golden mean" on line **AB**. **(AB/AE = AE/EB)**

To establish the offset of the flower "axis" equal to the diagonal of four squares: On line **AF**, draw four equal squares with the diagonal **AG**. **AG** will be the offset vertical axis of the flower.

The Banner will have a proportion of 3:2, and will be considered 30 units long and 20 units wide. **To locate the width of the Banner**, divide the radius of the circle into three 2 unit segments. In the upper left quadrant of the original circle, construct square **AEHI** and draw diagonals **AH** and **FI**. Draw a horizontal line, **JK**, through the intersection of the diagonals. Draw diagonals **KH** and **AJ** crossing **GI** at the third points, **L** and **M**. Draw the horizontal lines **NO** and **PQ** through **L** and **M** respectively. **HO** equals 2 units and **HQ** equals four units. With the center **H** and a radius **HQ**, draw the semi-circular arc intersecting an extended **IH** at **R**, locating the top of the Banner. With the center **I** and the radius **IR** (10 units) draw the semi-circular arc intersecting an extended **IH** at **S**, locating the bottom edge of the 20 unit wide Banner. **To establish the length of the Banner**, extend diagonal **AH** to **T** and complete square **TUVW**. Extend line **FA** to **X** (on line **UV**) and locate the mid point **Y** of **UX**. With the center at **U** and the radius **UY**, draw the semi-circular arc intersecting the extended **XU** at **Z**, locating the extreme lower left corner of the Banner. With the center **X** and the radius **XZ**, (15 units) draw the semi circular arc locating point **a** on an extended line **ZX**. Complete the rectangle **abcZ** establishing the width and length of the Banner.

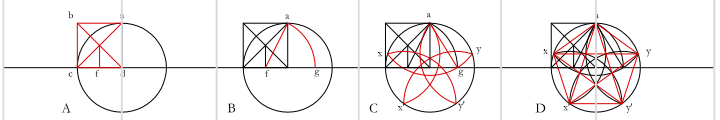


To construct the flower, draw a pentagon on the offset axis **GA**: Extend vertical axis **GA** to **f** on the perimeter of the 6 unit circle and draw the horizontal axis **de.** With G as the center and Gg as the radius, draw the arc intersecting the circle at **h** and at **k,** locating three of the five points of the pentagon. With the center **h** and the radius **hG**, draw the arc intersecting the circle at **i**. Continue with center **i** and center **j** and center **k**, completing the pentagon. To construct the petal, draw line **Ak** and find the mid-point **l.** With the center **l** and the radius **lA**, draw the arc of the backbone of the first petal.

To construct the serrated edge of the petal, raw line **lm** perpendicular to **Ak**, crossing the internal circle at point **n**. With center **n** and radius **ln**, draw the circle tangent to **Ak**. On line **Ak**, draw a circle with center **o**, tangent to circle **n** and tangent to the original circle. On line **AK**, draw a circle with center **p** tangent to circle **n**, slightly outside the center.

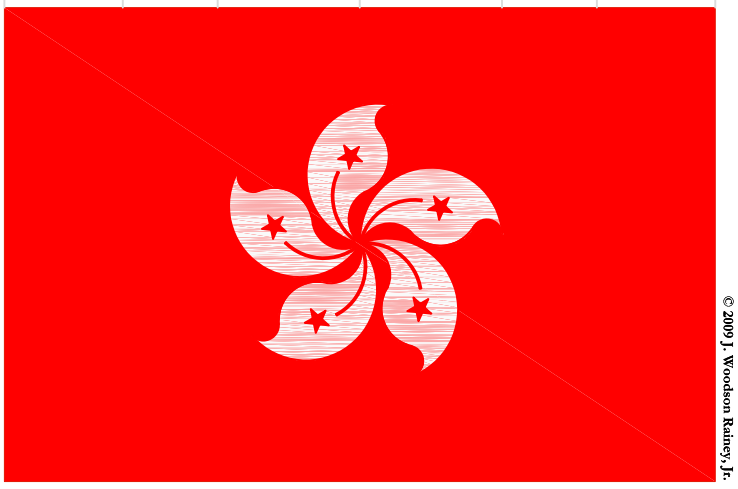
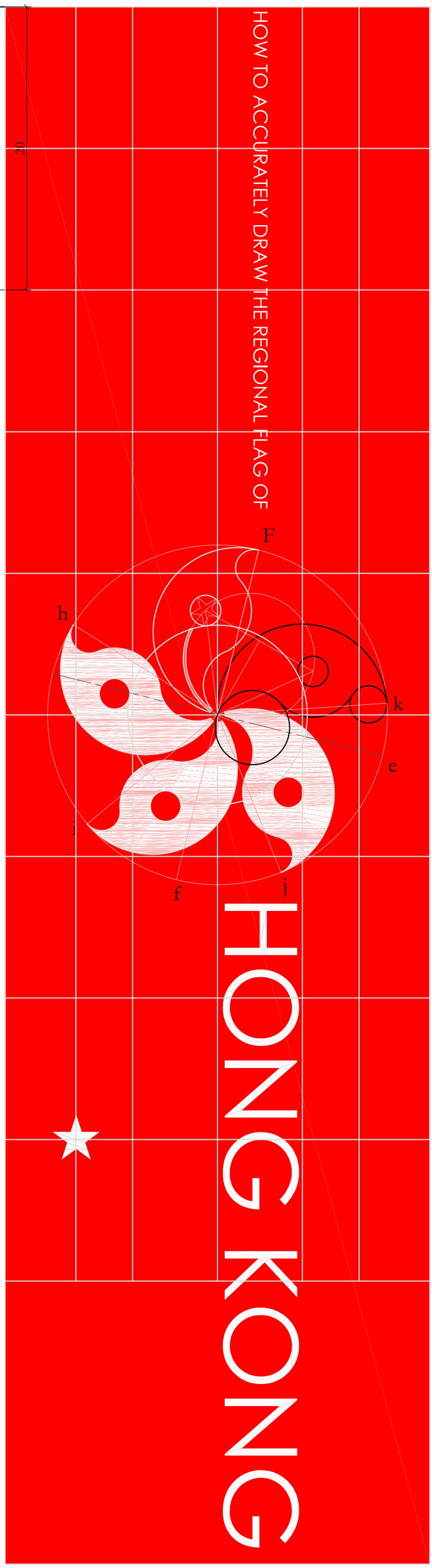
The diameter of the circle that encloses the star is 1/3 the diameter circle **n**: The star is located on the intersection of the inner circle at point **n**. To divide lm into three equal parts, construct square **qrst** tangent to circle **n**. Draw diagonals **rt** and sq and horizontal line **uv**. Draw diagonals **ru** and **vt** crossing sq at points **w** and **x**, locating the third points of the diameter **lm**. With the center at **n** and the radius **nw**, draw the circle that will surround the star.

The petals will appear to rotate around a fixed center circle. The fixed center circle is to be ½ the diameter of the circle **n**. The stamen with rotate out from the center of the circle and along the apparent center of the petal: The arc is a part of the circle that passes through the center **A** and through two adjacent star centers **n**. The length of this arc is determined by a circle with center **A** tangent to the circles surrounding the star



Construct a perfect five pointed star that fits into a $\frac{1}{3}$ unit diameter circle

Draw the circle with its centerlines and construct square **Xabc** in the upper left quadrant. Find point **d** at the midpoint of the base of square **Xabc** by drawing diagonals **ca** and **bX** intersecting at the middle of the square. **2**. With the center at d, and with a radius of da, construct arc ac intersecting the horizontal axis at c. **3**. With the center at a, and with a radius of ac, construct the arcs ac to intersect the circle at points **f** and **g**. With the centers at **f** and **g**, construct the arcs locating points **f'** and **g'** on the circumference of the circle **X**. **4.** Trace the pentagon **agg'f'f** and likewise, trace its diagonals **ag'**, **af'**, **gf'**, **gf'** and **fg'** to complete the **pentagram.**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