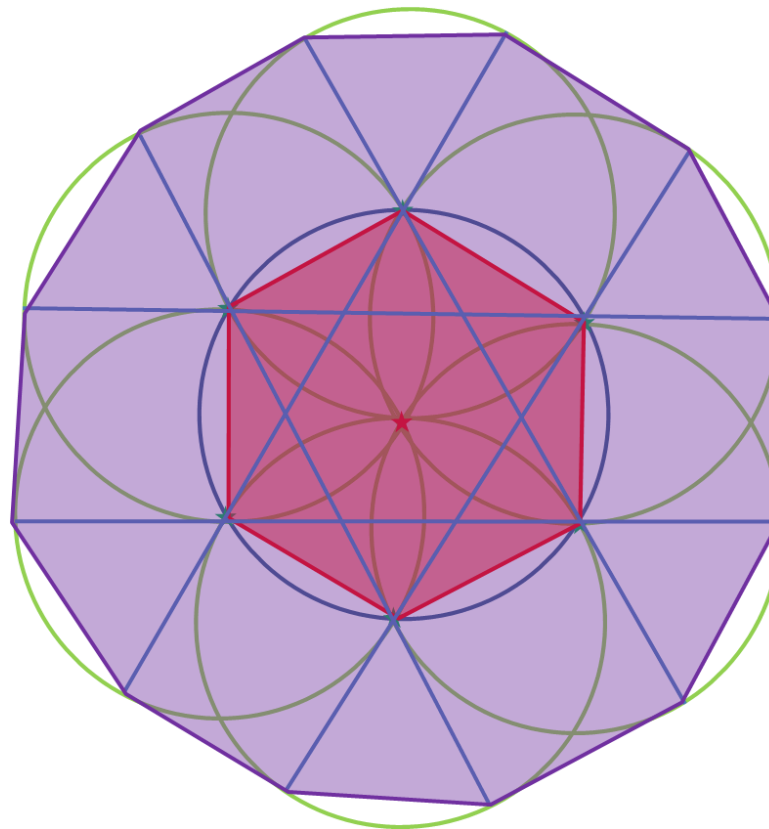


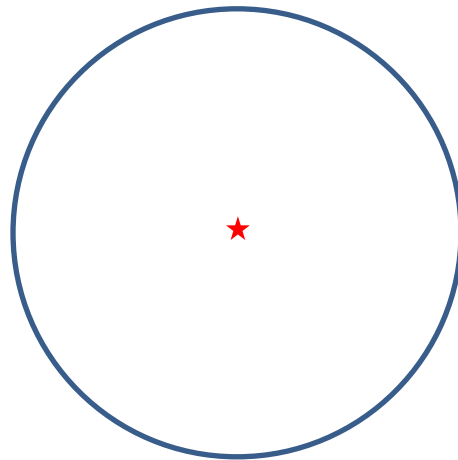
Construction of a regular hexagon and dodecagon

Dr Andrew French



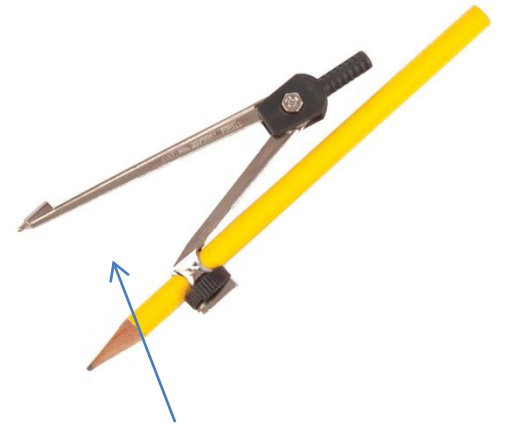
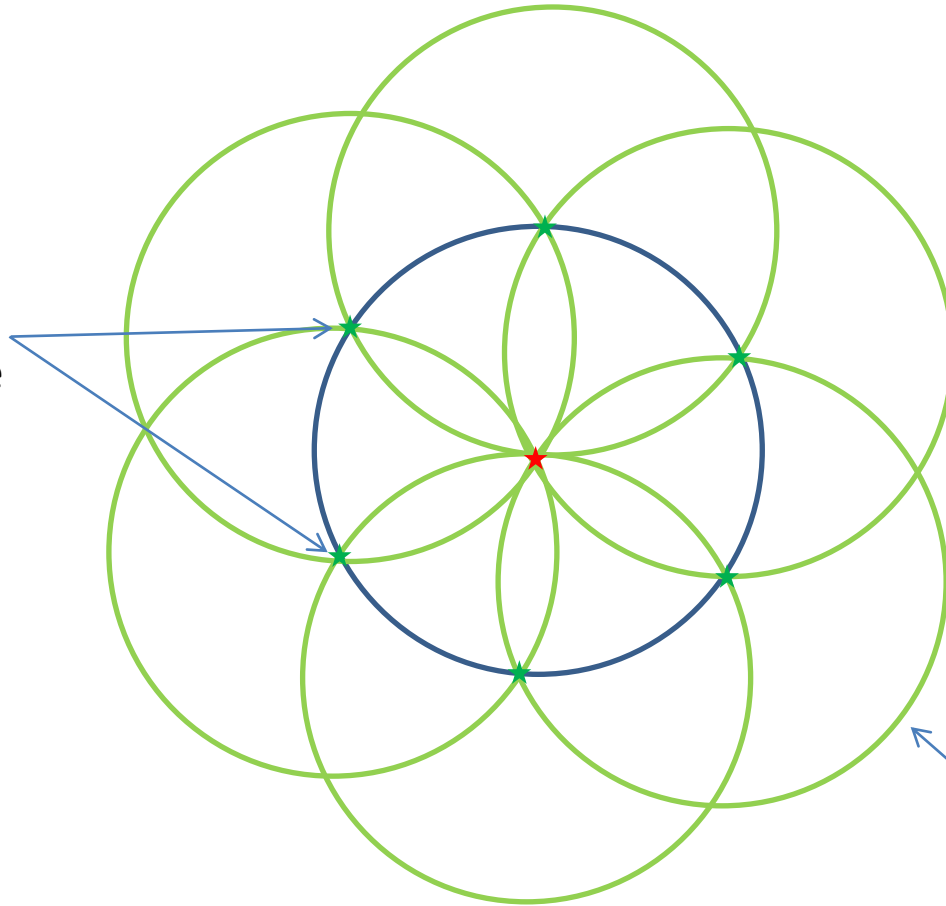
1. Draw a circle using a compass. If you are intending to draw a *dodecagon*, make sure the diameter of the circle is about half the length of the smallest dimensions of the paper you are working on.

★ circle centre



- Using the compass set to the radius of the circle, 'walk' the compass round the circle, marking off six equally spaced arcs
- Then draw circles of the *same* radius as the original circle, centred on the six equally spaced points on the perimeter that you have just marked.

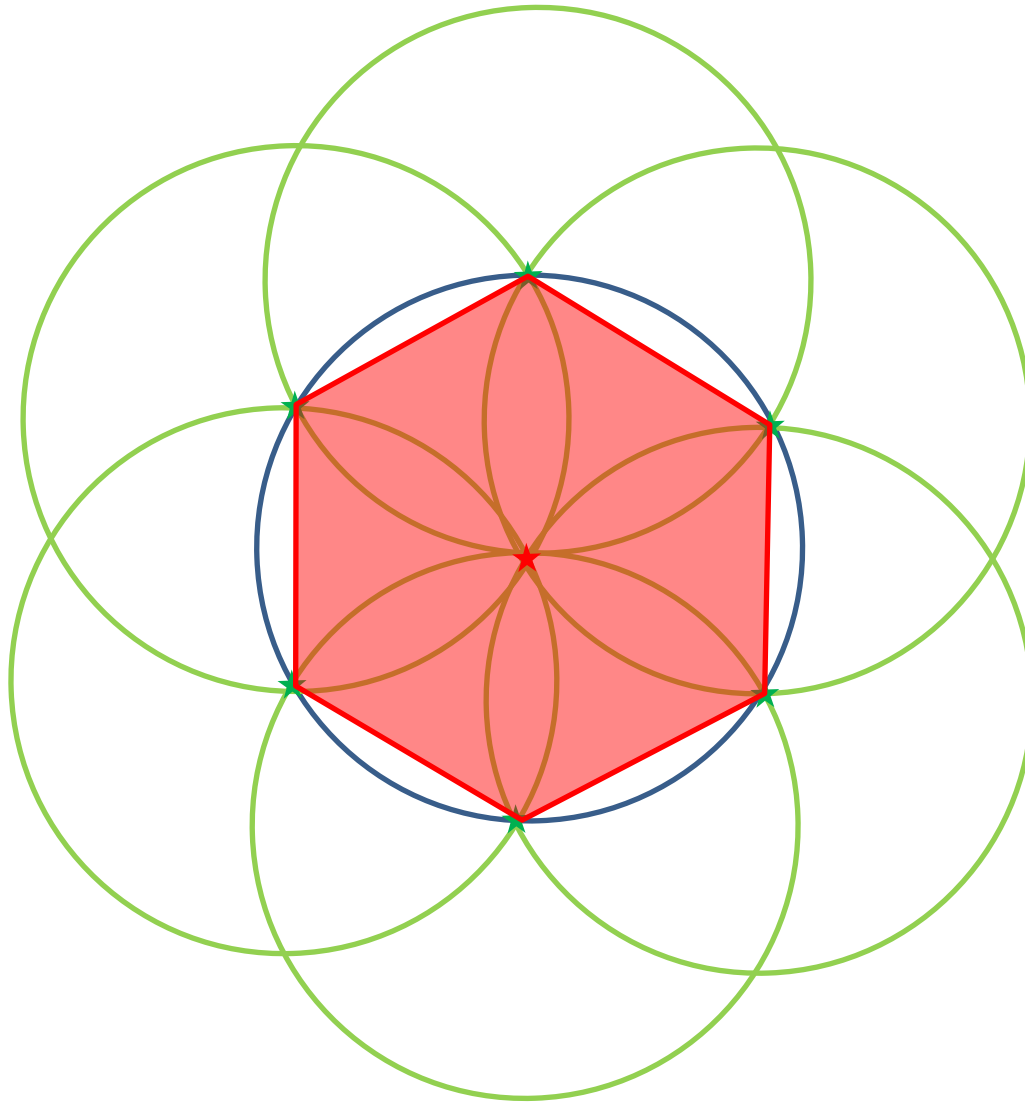
'Walk'
compass
around to
mark these
points ★



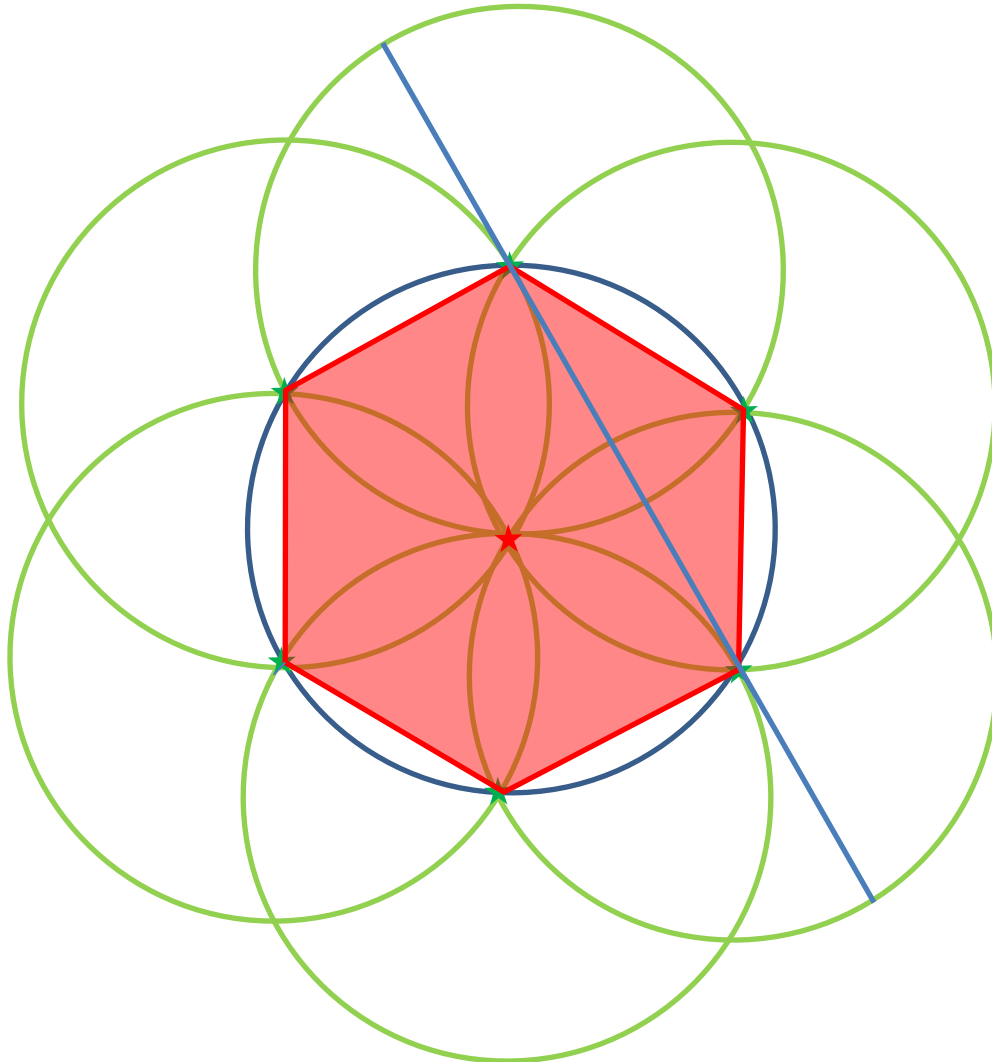
Keep the angle the
same as used to draw
the original circle

Draw six more circles
centred on the marked points ★

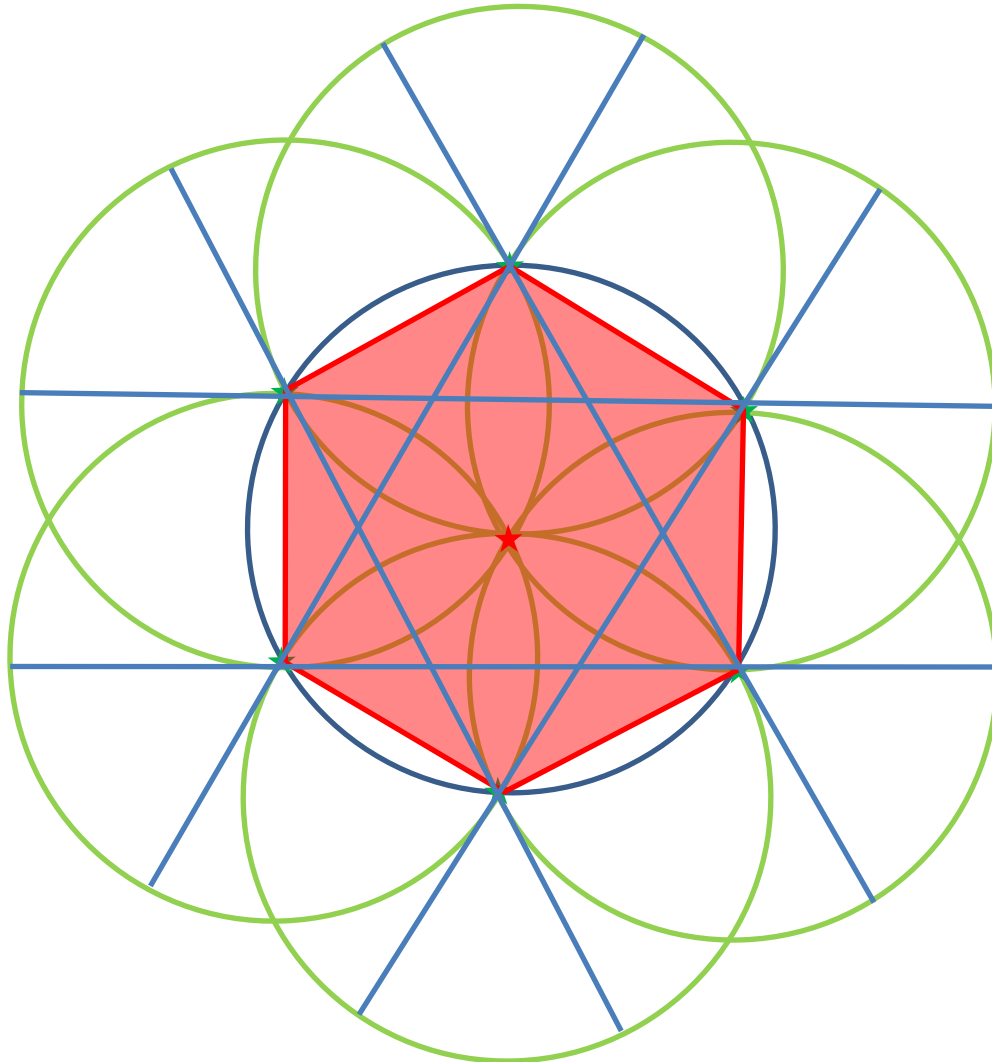
4. Connect up the marked points on the original circle with a straight edge to form a *regular hexagon*. ★



- Using a ruler, extend a line connecting pairs of vertices of the hexagon that are separated by one vertex. Mark where these lines intersect with the six external circles. Make sure you extend the line in both directions!



- Using a ruler, extend a line connecting pairs of vertices of the hexagon that are separated by one vertex. Mark where these lines intersect with the six external circles. Make sure you extend the line in both directions!



5. Connect up the intersections of the extended lines with the outer circles to form a *dodocagon* (a 12 sided regular polygon)

