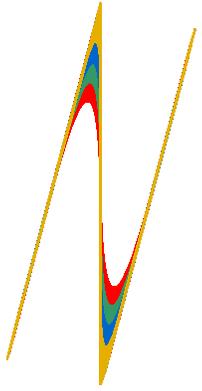
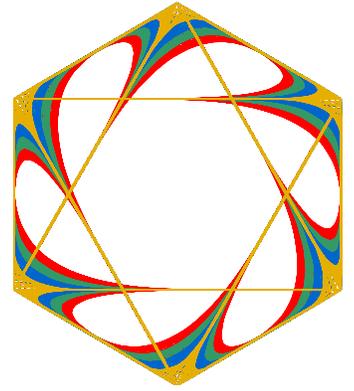


Spikes and Tails

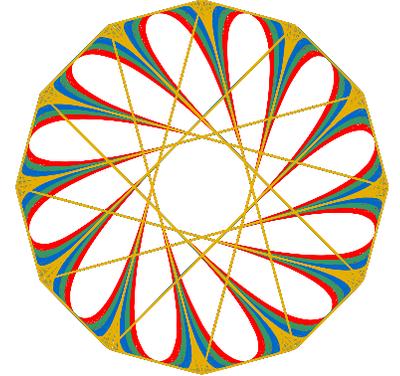


Two of the images in the [VCF > 1 explainer](#) used the idea of following a jump of J by $n-J$. When this is done in a two jump model, a single line results but when $k > 2$, this creates a spike. Spikes can create riveting images, especially when the ends of the spikes are not used elsewhere within the image. This is what distinguished the (7,5,6) N at left from the (2,8,4) hexagon at right. The six gold spikes (from 0-4, 2-6, 4-8, 6-10, 8-0, and 10-2) seem partially hidden due to the curves that are happening at the leading part of each of those lines.



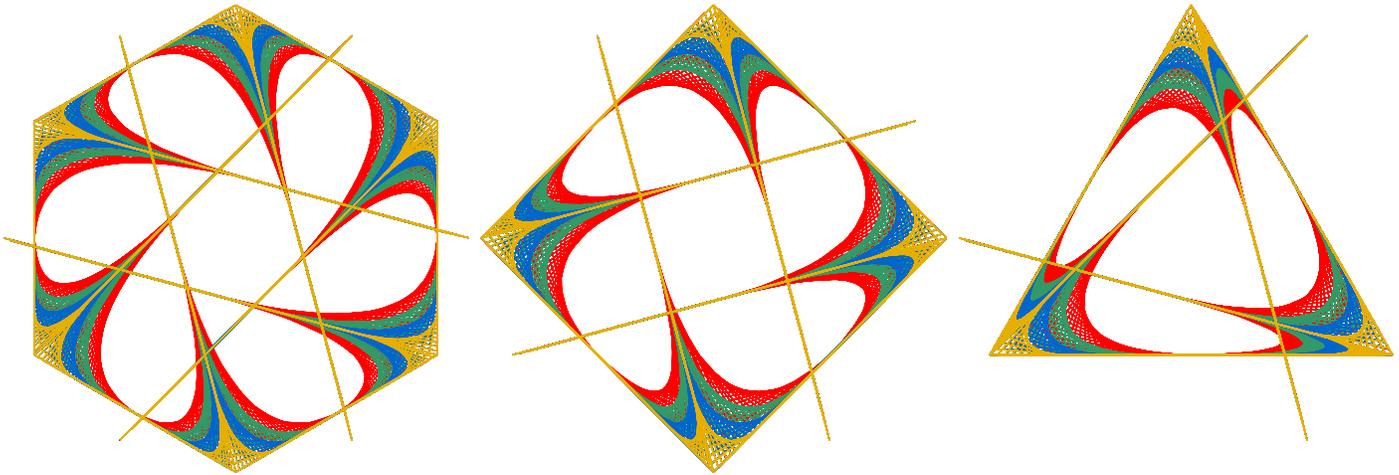
You can start the spike in any one of the three parts of the jump set. The only requirement is that the next jump must be $n-J$ so that if you are starting the spike as the third jump, it had better be the case that $J_3 = n - J_1$.

Spike ends at multi-use vertices. The VF of the N image is 7-0-6-1-6-0. The 1 and 7 vertices are single use, and the 0 and 6 vertices are used twice. Each of the 6 vertices in the hexagon is used three times as noted in the VCF > 1 explainer. The same is true of the (1,5,7) dodecagon to the right.



Swirl direction. If we call the above hexagon swirl *counterclockwise*, \cup , then the dodecagon swirl is *clockwise*, \cup , as are the next three images below. The difference is whether the larger or smaller jump is first. You can also switch spike and tail directions by swapping J and $n-J$.

Cross-over spikes. Increase J_1 from 1 to 2, 3, and 4 from the dodecagon and we obtain examples of cross-over spikes.



Tails. These images have 1-long tails. Try to create 2- and 3-long tails for \triangle s, and 2-long for \diamond s. N has two 5-long tails.

