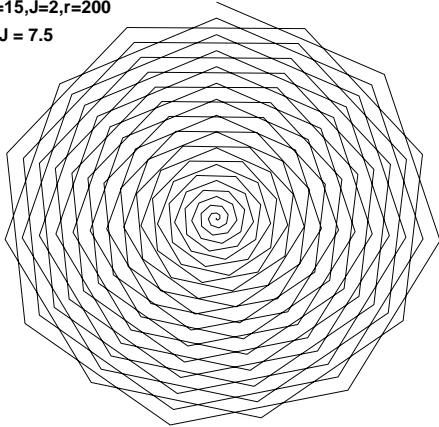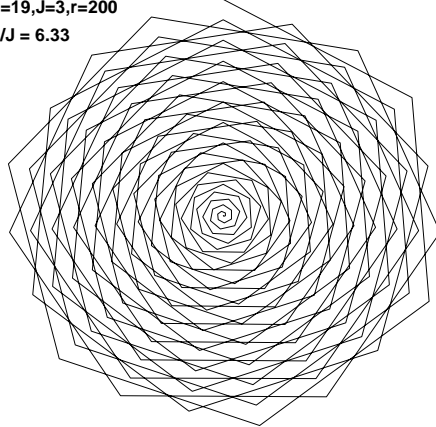# Spiral Flowers

As you scroll through *n*, *r*, *J* images you will inevitably find some that resemble flowers. Often this occurs when clockwise and counterclockwise swirls are present in the same image like the sunflowers examined here. Some are reminiscent of chrysanthemums that have a lot of small petals seemingly layered on top of one another but the spiral layered petals are not as regular as the string art versions discussed in E11.11. The small petals are created by having a couple of jumps (2 and 3 are shown in the top row) to create the feel of small triangular petals. When *J* = 2 the image does not swirl, but with *J* = 3, one can see a swirl toward the center, like the counterclockwise version in the middle image. The swirls compete with one another when *Mirror* is clicked on like you see in moving from the middle to right image.
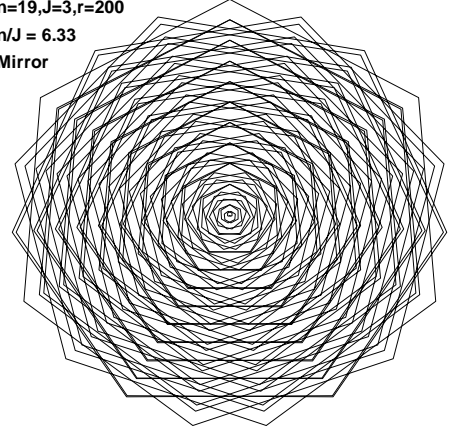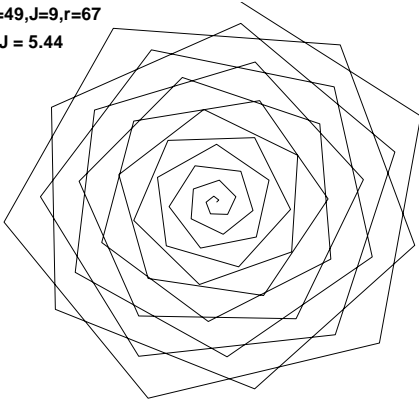
n=15,J=2,r=200
n/J = 7.5

n=19,J=3,r=200
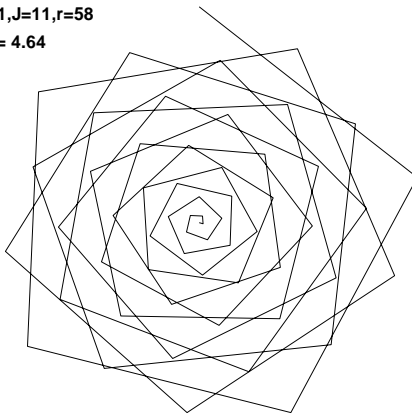n/J = 6.33

n=19,J=3,r=200
n/J = 6.33
Mirror

When jumps become larger, one obtains images that are more reminiscent of roses or at least flowers with somewhat larger petals. The three images below vary *n*, *J* and *r*. The key here is to use a smaller *r* so the triangles are larger.
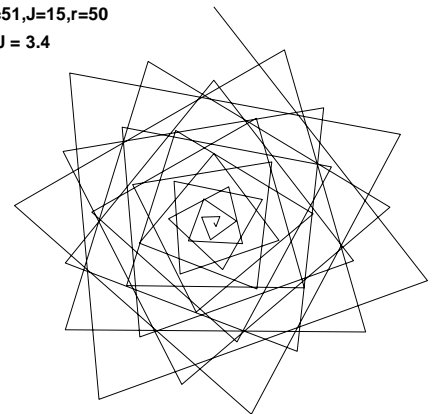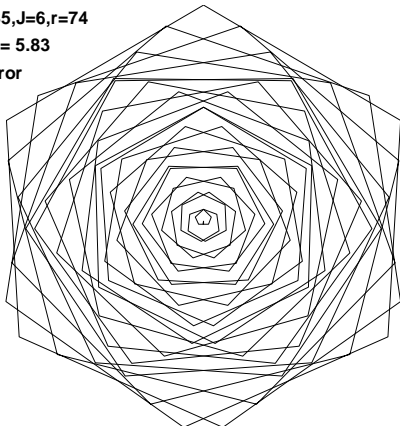
n=49,J=9,r=67
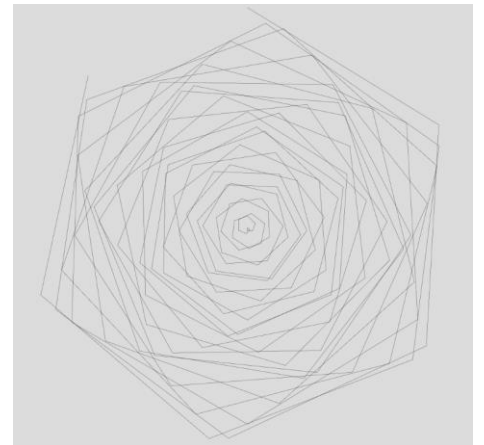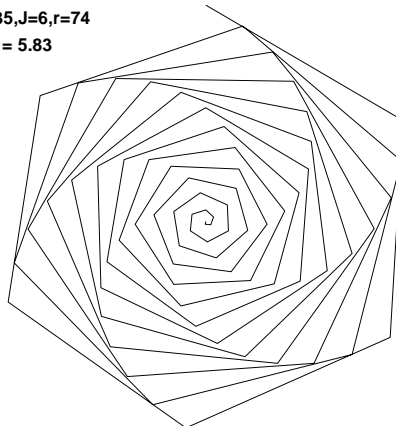n/J = 5.44

n=51,J=11,r=58
n/J = 4.64

n=51,J=15,r=50
n/J = 3.4

The final three images show the difference between Excel at left and web mirrors and right. The middle is without mirror. The left has a vertical mirror (through 0 and 17.5), the right ends at 30.5 so the web mirror is through 15.25 and center.

n=35,J=6,r=74
n/J = 5.83
Mirror

n=35,J=6,r=74
n/J = 5.83

More generally, if you have a spiral with a swirl, clicking mirror on will likely turn the image into a flower of some kind.