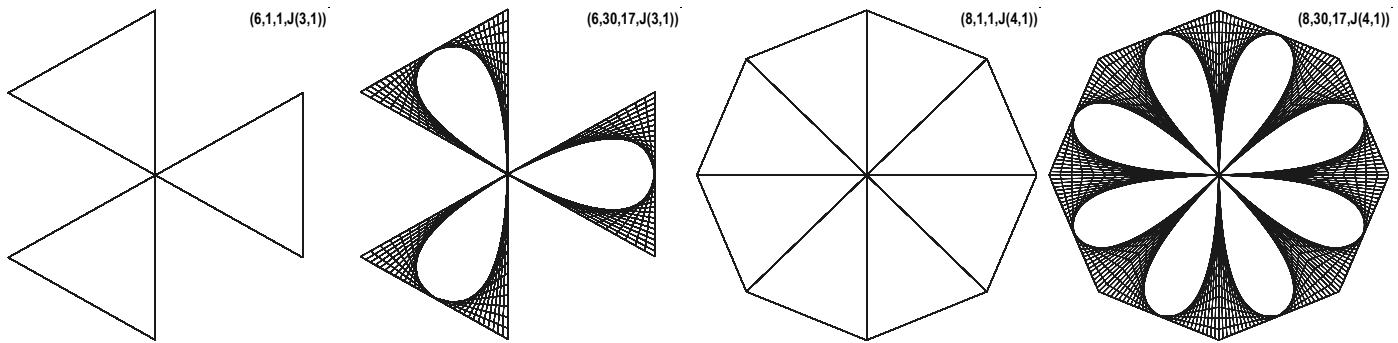# Even Spiderwebs and Odd Foghorns

When **n** is even, a jump of **n**/2 as part of a jump set creates sharp lines through the center of the parent polygon. When the other jump is 1 or **n**-1 the spiral images that result resemble foghorns or spiderwebs depending on whether **n** is divisible by 2 but not 4 of if **n** is divisible by 4. It is convenient to have the first jump be **n**/2 and the second be 1.

An aside on missing pieces of the pie. The double jump model in Chapter 16 of ESA included multiple versions of the double jump *Excel* file. As discussed in E16.5, one version reversed direction for the last half of the string art image to fill in the missing pieces when **n** = 4**k**+2. The vertex frame, VF, to the left shows the issue for **n** = 6. Given this jump set pattern, the VF is completed after **n** or 6 jumps: 0-3-4-1-2-5-0. If this is filled in in a string-art fashion, there will be **n**/2 = 3 petals in the flower like the second image, or **n**/2 = 3 pieces of pie, not 6. By contrast when **n** = 4**k** like **n** = 8, the VF is completed after 2**n** or 16 jumps: 0-4-5-1-2-6-7-3-4-0-1-5-6-2-3-7-0 and the flower has **n** = 8 petals or **n** = 8 pieces of pie like the last two images. This pattern continues for larger **n**, half the pieces are missing if **n** = 4**k**+2, all are there if **n** = 4**k**.

(6,1,1,J(3,1))   (6,30,17,J(3,1))   (8,1,1,J(4,1))   (8,30,17,J(4,1))

Odd spiral foghorns and even spiderwebs. If **n** = 4**k**+2 there are 2**k**+1 (an odd number) of foghorns (the other sections are open) like **n** = 6, 10, 14 from L-R. If **n** = 4**k**, all 4**k** sections are filled in and spiderwebs result like **n** = 8, 12, 16 below.