Additional Image Detective Strategies

More **Things to notice** (beyond 1-10)

11. If you can see a structure that repeats itself, you may benefit by restricting the analysis to a portion of the image.

    n is a multiple of the number of times it repeats itself.

12. If there are ***k*** levels of interior subdivision points shown, then ***S*** is likely 2***k*** or 2***k***+1. The reason is that the end of the first subdivision and the start of the last subdivision on a segment of the vertex frame are at the same level. The same goes for second and 2nd to last, and so on. Therefore

    S = 2 and ***S*** = 3 produce a single level,

    S = 4 and 5 produce 2 levels.

    S = 6 and 7 produce 3 levels, and so on.

13. If you can count the number of segments in a structure that repeats itself, that provides an indication of ***S***.

Consider the images to the right called Top, Middle, Bottom

a. Top repeats itself 5 times. Middle repeats itself 10 times and Bottom repeats itself 11 times.

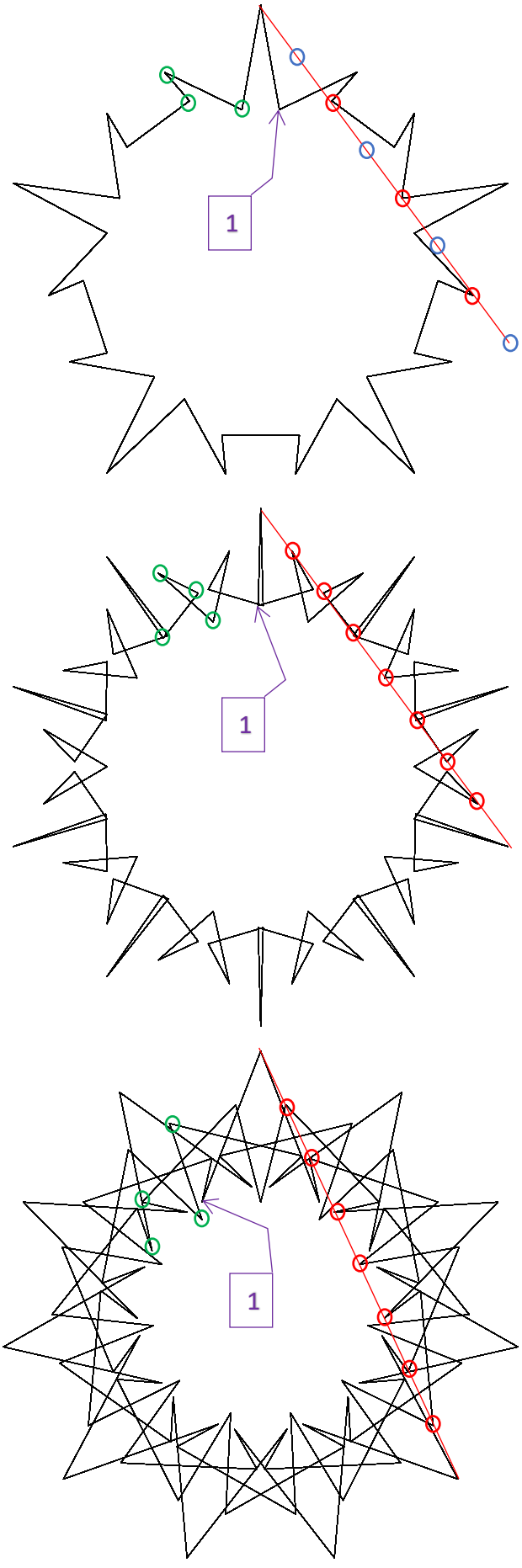
b. (**Green**) The Top image has subdivision points at 3 levels. This means ***S*** is likely 6 or 7 for Top. Counting the number of segments in 1/5 of the whole is 7 so ***S*** = 7. Middle has 4 subdivision levels as does Bottom so both are ***S*** = 8 or 9. Counting from peak to peak confirms that ***S*** = 8 in Middle, but Bottom is harder to count that way.

c. (**Red**) Checking the lines drawn for Top if ***n*** = 5 and ***J*** = 1 or 2 suggest that **n** > 5 must be true (as none of the internal vertices are on those lines). But ***n*** = 10, ***J*** = 3 coincides with all three levels of subdivisions. Note that these three points are **not** equally spaces on the line. This confirms that ***S*** = 7 for Top with subdivision endpoint not used noted in blue on this first line of the vertex frame.

By contrast, Middle and Bottom have a ***J*** that coincides with each level of the image so that ***n*** = 10, ***J*** = 3 for Middle and ***n*** = 11, ***J*** = 4 for Bottom. Equal spacing of subdivisions along first line of the vertex frame confirms that both images are ***S*** = 8.

Continue the vertex frame in each case to find ***P*** (labelled **1**). The 3rd subdivision on the 4th line of the vertex frame is the first point in the Top (***P*** = 24 = 3*7+3). The 3rd subdivision on the 4th line of the vertex frame is the first point in the Middle (***P*** = 27 = 3*8+3) Finally, the 3rd part of the 6th line of the vertex frame is the first point in the Bottom image (***P*** = 43 = 5*8+3).

Click below then click *Toggle Drawing* to see Bottom drawn.



https://www.playingwithpolygons.com?vertex=11&subdivisions=8&points=43&jumps=4