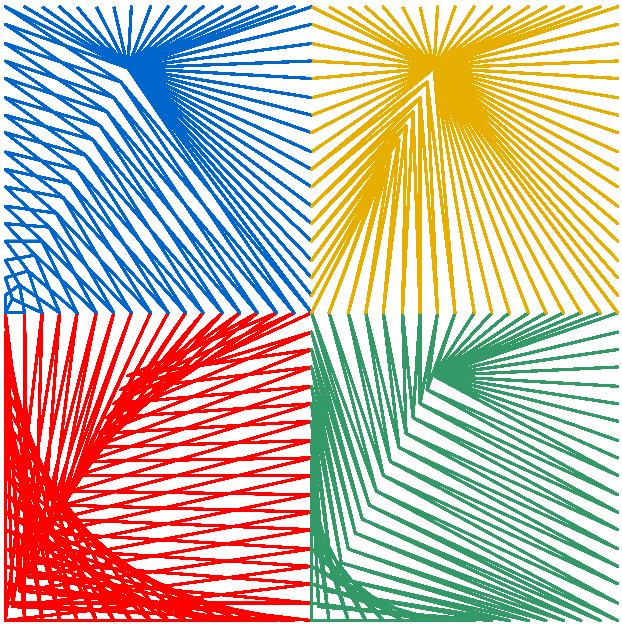
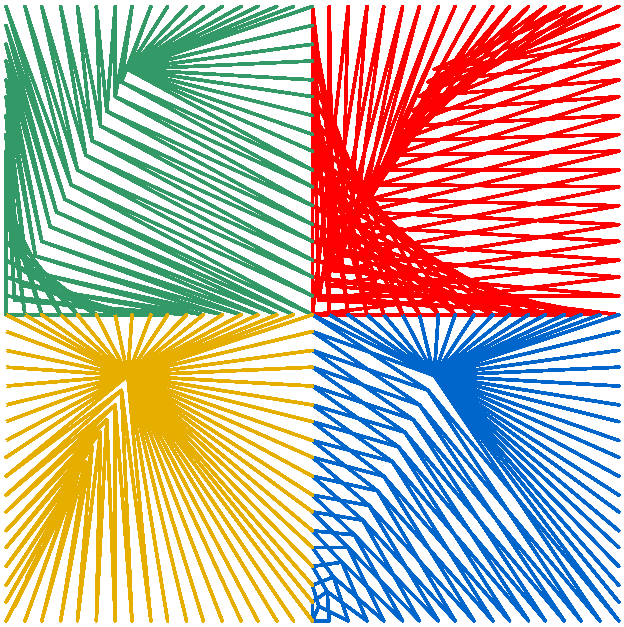
Variations on being *Inside the Box*

These images are variations on images created in the Inside the Box *explainer*. Each has ***S*** = 17 as in that *explainer* and each image has ***P*** as close to INTEGER(17***V***/2) as possible given SCF = 1.





1. Explain what was done to create the image on the left above. What can you say about the vertex that is inside the box in this situation?

2. The image on the right above was created by changing a single number in the Excel file once the left image was created. Can you figure out what was done?

FACTS. The image at bottom right involved a bit more work to create but it was created to satisfy two properties.

- **I.** it is symmetric about the main diagonal from (0,0) to (2,2).
- **II.** If you were to connect the interior points you would end up with a square whose area is 2.25, a bit more than half of 4, the total area covered by the four tiles.

3. Given the facts discussed above, recreate this image. What are the values of ***V*** and ***P*** and what are the vertices for each color in the image? In particular: What are the four inside points? You may want to check your work by recreating this image.