

Challenge Questions to consider:

1. Fix J at some small value larger than 1 (like 2, 3, 4, 5 or 6). Then set n to $J+J$.

Notice that the image has $1/J$ fraction of vertices used and the image is a line segment.

The next larger n that uses $1/J$ is J more than $J+J$. and how the image is a triangle.

This pattern repeats every J units and the resulting image is a larger and larger polygon.

2. Set $n = 7$ and $J = 1$. Increase J and see when you find that pattern once again.

Do the same for $n = 7$ and $J = 2$. Then do it one more time for $n = 7$ and $J = 3$.

Can you explain why the same image exists for two values of J for any n ?

Hint: All images are symmetric about the vertical line and the image can be drawn starting in a clockwise or counterclockwise fashion.

3. Set $J > n$, like $J = 8$ and $n = 7$. Can you find a similar image with $J < n$?

4. Set $n < 25$ and find a J that gives an image you like.

Find a value of $n > 25$ that produces the same image.

5. Set $n < 17$ and find a J that gives an image you like.

Find two more values of $n > 17$ that produces the same image.

6. Set $n < 13$ and find a J that gives an image you like.

Find three more values of $n > 13$ that produces the same image.