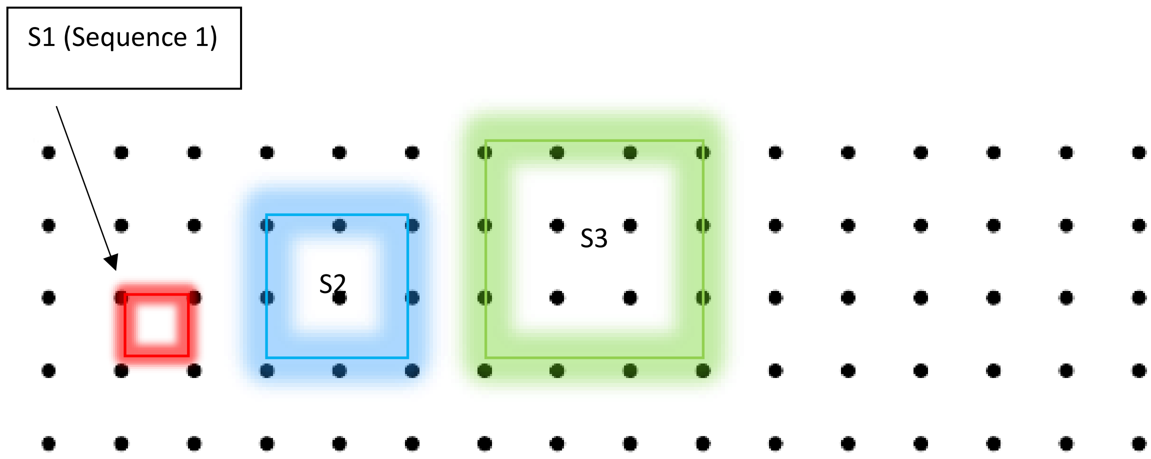
We had an idea that each shape has a set of formulas that determine the variables. We started off with squares and soon discovered multiple rules:



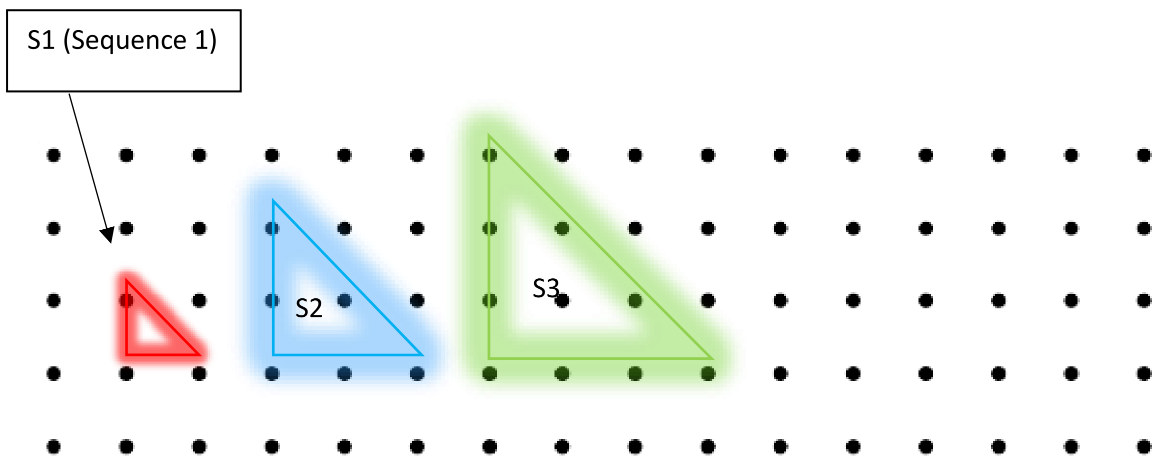
(**Just remember**, the side is always the amount of dots, not lines).
The sequence is the pattern of squares. For example, a 1 x 1 square would be S1, a 2 x 2 square would be S2, and so on.

Area (a)= $(\text{height} - 1)^2$

Perimeter (p)= $\sqrt{a} \times 4$

Interior (i)= $(S\ [\text{Sequence}] - 1)^2$

We named this sequence the "Golden rule", and tried to do the same for other shapes, such as triangles, however found there was a different "Golden rule" for each shape:



Area = $\text{Height}^2 \div 2$

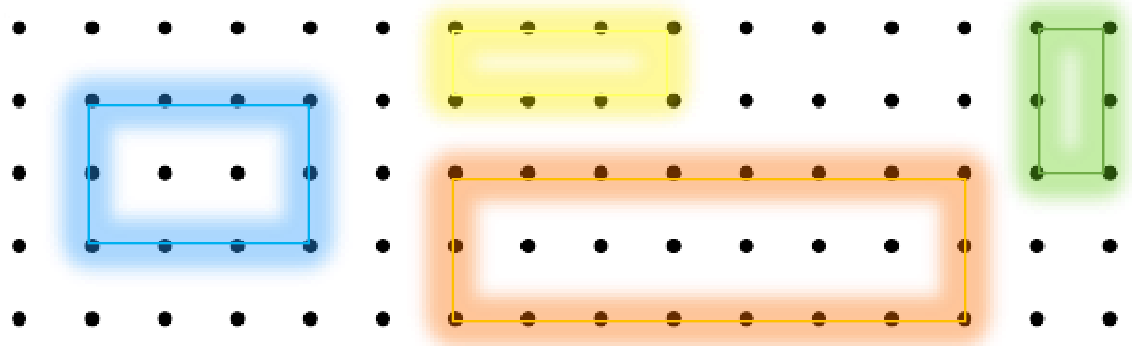
(We know that the perimeter is ¾ of the corresponding square)
Example: The S3 square has a perimeter of 12, and the perimeter of the S3 triangle is 9.

Perimeter = perimeter of (the corresponding square of that triangle) * ¾

Interior = (S-3) + (tr [p]) + (tr [i]) (obtain the sequence three less your triangle and add it's perimeter and interior).

Tr = Triangle
P = Perimeter
I = Interior

Rectangles:



Area = (L-1) x (W -1)

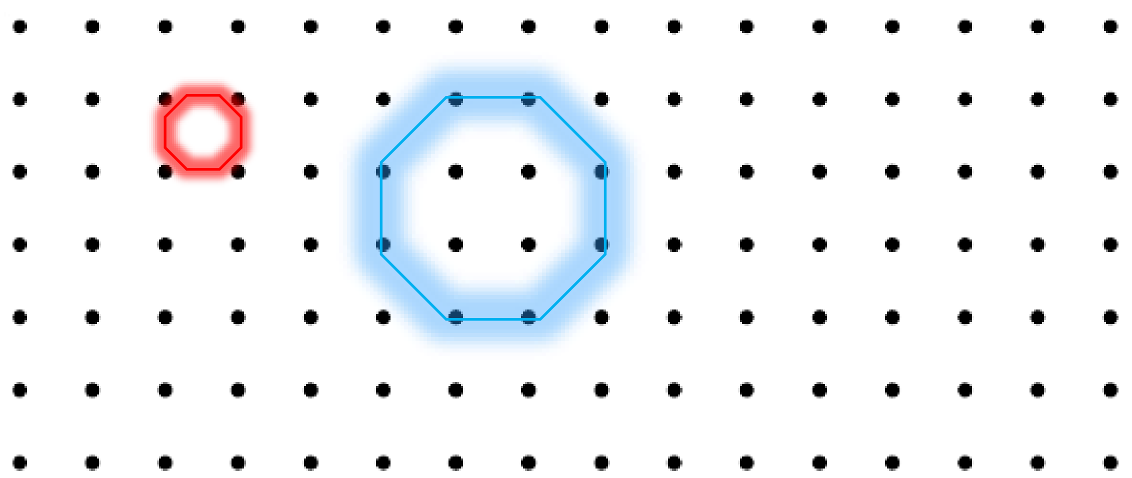
Perimeter = (W x 2) + ([L – 2] x 2)

Interior = (L – 2) x (W – 2)

L: Length (counting the dots)

W: Width (counting the dots)

Octagon:



Area = ([Os – 1] x 3)^2 – ([Os – 1] × 2) **Os: 1 octagon side**

Perimeter = ([Os – 1] x 8)

Interior = Interior of ([Os – 1] x 3)^2 – Interior of ([Os – 1] x 2)