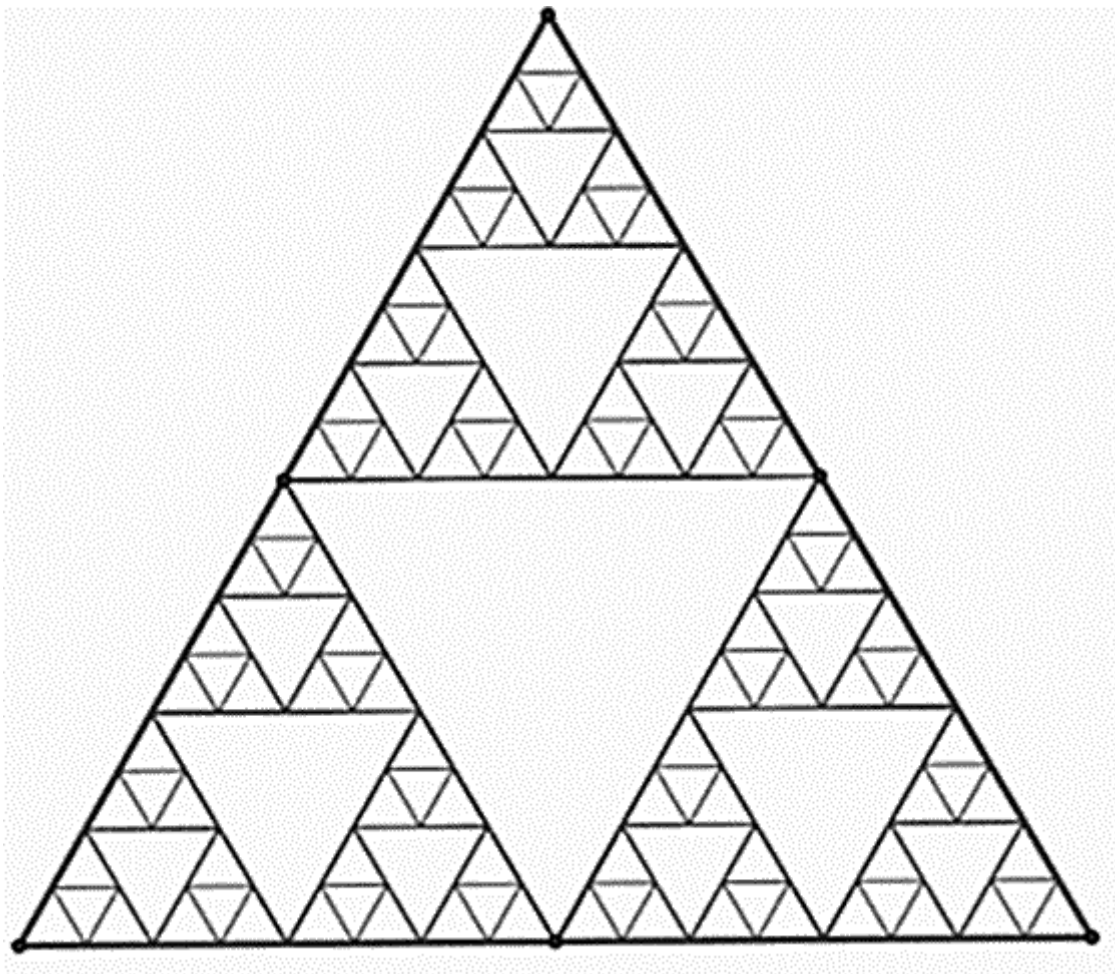


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Perimeter of Sierpinski Triangles Formula for 2021

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The Sierpinski triangle is a fractal described in 1915 by Waclaw Sierpinski. A self-similar structure occurs at different levels of iterations, or magnifications. We can use Geometer's Sketchpad to construct these types of triangles, and then compare them to the pattern of Pascal's Triangles.



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The perimeter of the triangle increases by a factor of $\frac{3}{2}$. Thus, we can express the total perimeter of the triangle as a function of number of iteration, as shown below:

$$P1 = P0 \times \left(\frac{3}{2}\right)^n$$

From this expression, we can see that the total perimeter length of a Sierpinski triangle is infinite. We can verify this by taking the limit of our perimeter function as

$$\lim_{x \rightarrow \infty} \left(\frac{3}{2}\right)^x = \infty$$

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