

# What's Happening?

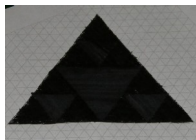
**Problem:** Given the first two stages of a Sierpinski Triangle, show up to Stage 4. Describe what happens to the shaded area and perimeter of the shaded area as the number of stages increases. Find a general rule for the area and perimeter at stage  $n$ .

**Content:** Area, Perimeter, Pythagorean Theorem, Patterns, Fractals, Iterations.

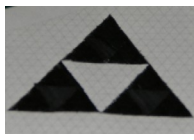
**Level:** Algebra

**Possible Extensions:** Midpoint, Distance Formula, Pascal's Triangle, Coordinate Geometry.

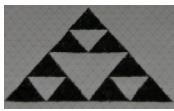
**Student Responses:**



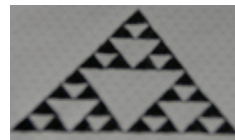
Stage 0



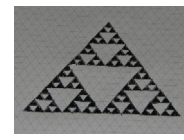
Stage 1



Stage 2

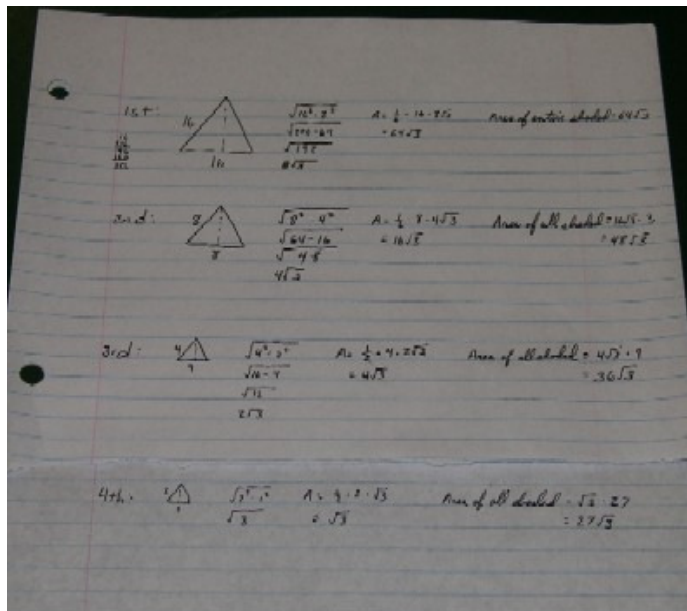


Stage 3



Stage 4

Stage	Area	Perimeter
0	110.85	48.00
1	83.14	72.00
2	62.35	108.00
3	46.77	162.00
4	35.07	243.00
5	26.31	364.50
6	19.73	546.75
7	14.80	820.13
8	11.10	1230.19
9	8.32	1845.28
10	6.24	2767.92



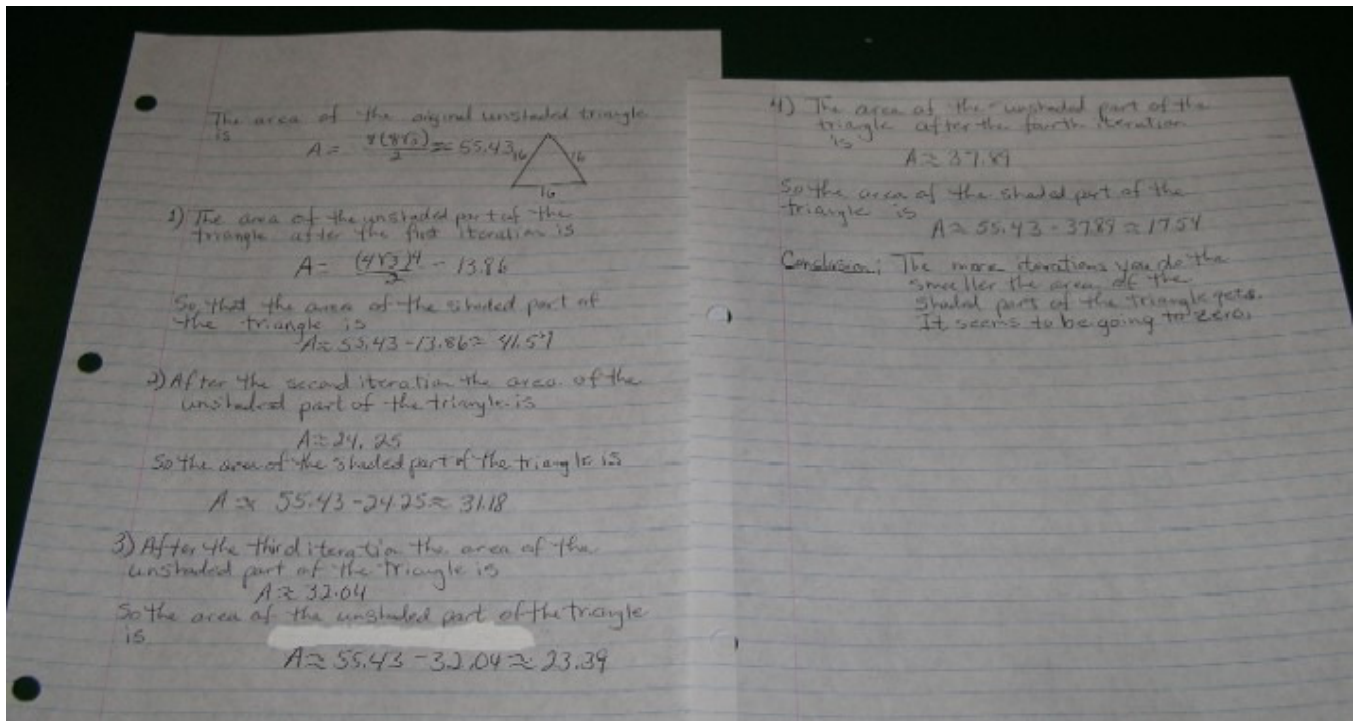


Table 12

Kelley, Lars, Alieze, Gary, Jerry