## Unit 1 Lesson 8: The Term

### 1 Which One Doesn’t Belong: Repeated Operations (Warm up)

#### Student Task Statement

Which one doesn’t belong?

A.

B.

C.

D.

### 2 More Paper Slicing

#### Student Task Statement

1. Clare takes a piece of paper with length 8 inches and width 10 inches and cuts it in half. Then she cuts it in half again, and again. . .
   1. Instead of writing a recursive definition, Clare writes , where is the area, in square inches, of the paper after cuts. Explain where the different terms in her expression came from.
   2. Approximately what is the area of the paper after 10 cuts?
2. Kiran takes a piece of paper with length 8 inches and width 10 inches and cuts away one inch of the width. Then he does it again, and again. . .
   1. Complete the table for the area of Kiran’s paper , in square inches, after cuts.

|  |  |
| --- | --- |
|  |  |
| * + 0 | * + 80 |
| * + 1 |  |
| * + 2 |  |
| * + 3 |  |
| * + 4 |  |
| * + 5 |  |

* 1. Kiran says the area after 6 cuts, in square inches, is . Explain where the different terms in his expression came from.
  2. Write a definition for that is not recursive.

1. Which is larger, or ?

### 3 A Sierpinski Triangle

#### Student Task Statement

A Sierpinski triangle can be created by starting with an equilateral triangle, breaking the triangle into 4 congruent equilateral triangles, and then removing the middle triangle. Starting from a single black equilateral triangle:



1. Let be the number of black triangles in Step . Define recursively.
2. Andre and Lin are asked to write an equation for that isn't recursive. Andre writes for while Lin writes for . Whose equation do you think is correct? Explain or show your reasoning.



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