

Student Problem Corner

John B. Percevault

Problem 1

To the teacher: Many problems of the type that follow can be developed by students. Although the problem appears simple, the successful problem solver must analyze as well as recall basic facts. Logic must be used. Students enjoy developing similar problems and vary conditions in the development of new problems.

The teacher may vary the description of the set of numerals used as replacements for the solution.

Review Exercise

$$\square + \square = 8 \quad \square \times \square = 35$$

$$\square \div \square = 0 \quad \square - \square = 3$$

$$\square ? \square = 6$$

Some suggested questions:

1. What equation(s) did you solve first? Why?
2. In the equation $\square \div \square = 0$, where did you place the zero? Why?
3. What was the last equation you solved?
4. What problem solving skills or strategies did you use?
5. Can you develop a similar problem?

Problem 2

To the teacher: Many problem solving strategies that can be used in this problem include the following:

1. Counting
2. Classification (length of side of triangles)
3. Listing tables

Example: Triangle of one unit length

Row	No. of triangles	Total
1	1	1
2	3	4
3	5	9

4. Using manipulatives—Model of triangle with sides of 1, 2 . . . units
5. General form

Counting Triangles

Row

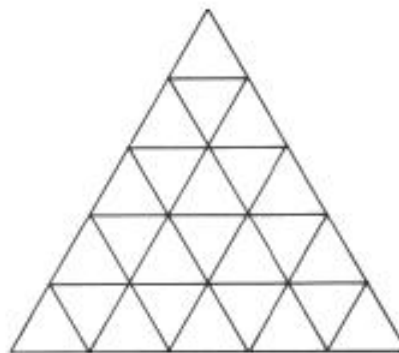
1

2

3

4

5



Sample Questions:

1. Can you find a triangle whose side length is 2? is 3? . . .
2. How many triangles in row 1? row 2? . . .
3. How many triangles (unit length) are in the first 2 rows? . . .
4. Repeat the questions with reference to triangles whose side length is 2, 3. . . .
5. Many more questions could be defined.

Extensions

How many triangles with a unit length side would there be in the 8th row? 20th row? nth row? (Looks like the nth term of an arithmetic progression to me.)

What is the sum of all unit length triangles in the 8th row? nth row?

Develop extensions for number of and sum of triangles whose side length is 2.

Record (tabulate) results.