

Most initial forays into elementary number theory cover topics in multiplicative number theory including topics such as prime factorization, Möbius inversion, primitive roots, quadratic reciprocity, and so on. But there is another aspect to elementary number theory known as additive number theory. Some sample questions in this area include:

- Is every positive even integer the sum of two primes? (Goldbach conjecture)
- Can every positive integer be written as the sum of k squares? k cubes? k fourth powers?, etc.
- Does $x^n + y^n = z^n$ have any non-trivial integer solutions when $n \geq 3$? (Fermat's last theorem)

This talk will concern polygonal numbers: examples of which include triangular, square, pentagonal, ...

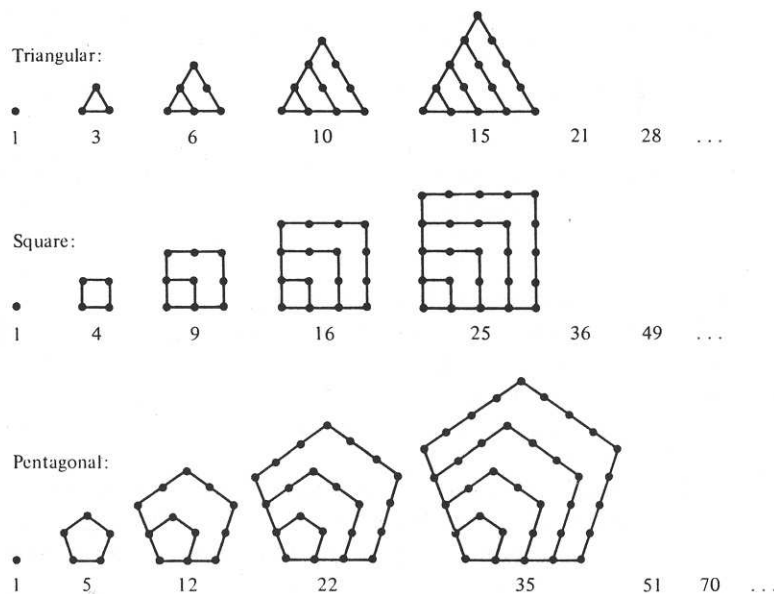


Figure I.1

We shall talk about representing numbers as sums of polygonal numbers as well as their connections to other functions of combinatorial interest such as partition functions.