On the first day of the International Puzzle Party (IPP) in Antwerpen in 2002, there was a long neverending and boring lecture. I was doodling on a squared page of paper, when out of the blue, an idea for a paper-and-pencil puzzle/game surfaced. It was not the first time that my subconscious was providing me with original ideas.

The idea:

Imagine a Grasshopper jumping along a line according to the following rules.

Given a line of integral length 'n', the object of our Grasshopper is to start jumping from point 0, in successive jumps of consecutive lengths: 1-2-3-4-...........-n along the line, so as to make as many jumps as possible and finish the n-th jump at the end point of the line, at point 'n'.

If we have a line on which this can be achieved our game ended and we have a solution. If not, the game has not ended and has no solution.

Looks interesting, I decided, and went on doodling systematically to find solutions:
The Story of "THE GRASSHOPPING GAME"

By this time I saw there are lines on which the game can be properly ended providing a solution, and other which have no solution at all. But it also became clear to me that my innocent Grasshopping Game is much more than just a simple paper-and-pencil doodling. Its solutions are generating an infinite number sequence, and an infinite number of puzzles to solve, with some interesting mathematics behind it.

I wanted to go on doodling to find more solutions, but at this point the boring, but now productive lecture ended.

With this interruption I would like to challenge the audience to find the next three solutions to the Grasshopping Game which can now be called the Grasshopping Sequence. The first person coming to me with the solutions will get as a prize: my next book "The Puzzle-Book" soon to be published.

After the interruption I sat down and devoted an hour or so, to find the solutions to the first 40 games. I found there are 16 solutions among them. Can you try to do the same?

Later that day, I met Dick Hess and asked for his ideas on the general solution of the Grasshopping Sequence. The next day at breakfast I met him again. He politely thanked me for the sleepless night, but assured me, he doesn't give up. Dick joined forces with Benji Fisher, and the next day, the mathematics behind the Grasshopping Sequence was solved, providing me with the solutions for any line length, this time without hard work.

The end of the story of the Grasshopping Game and Sequence: At the next G4G9 I met Neil Sloane. Somewhat timidly, I told him the story of Grasshopping, my integer number sequence. He was enthusiastic about it.

The result was, that today, my Grasshopping Puzzle-Game and the Grasshopping Number Sequence occupy a respectable place on the Internet, among the giants of integer sequences, the Pi, the Primes, the Fibonacci and other - in the exciting "On-Line Encyclopedia of Integer Sequences of Neil - of which I am quite proud.

Google it on the Internet, to reveal the general solution and the mathematics behind the Grasshopping Number Sequence.

I.M. at G4G10
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