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Self-avoiding walks and Fibonacci numbers,
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Abstract

By combinatorial arguments, we prove that the number of self-avoiding walks on the strip $\{0,1\} \times \mathbb{Z}$ is $8F_n - 4$ when n is odd and is $8F_n - n$ when n is even. Also, when backwards moves are prohibited, we derive simple expressions for the number of length n self-avoiding walks on $\{0,1\} \times \mathbb{Z}$, $\mathbb{Z} \times \mathbb{Z}$, the triangular lattice, and the cubic lattice.