

SOLUTION PROBLEM OF THE MONTH, MARCH 2018

Congratulations to Piotr Laskawiec and Camila Larsson for submitting correct solutions to the March problem of the month!

Problem. A postal worker delivers mail to the twenty houses on a street block. The mailman notices that no two adjacent houses ever get mail on the same day but out of any three consecutive houses at least one gets some mail in any given day. How many different daily patterns of mail delivery are possible?

Solution

Identify mail delivering patterns with binary sequences of length 20 where 1's denote houses that receive mail and 0's represent houses that do not receive mail in any given day. Since no

Hence, there are 465 different mail delivery patterns for 20 houses.

As noticed by both Piotr and Camila this sequence

2;3;4;5;7;9;12;16;21;28;37;49;65;86;114;151;200;265;351;465;...

is a particular example of the Padovan sequence.