

$$a_{n+3} - 2a_{n+2} - 4a_{n+1} + 8a_n = 0 \quad a_0 = 0 \quad a_1 = 1 \quad a_2 = 2$$

$$\lambda^3 - 2\lambda^2 - 4\lambda + 8 = 0$$

$$\lambda^2(\lambda - 2) - 4(\lambda - 2) = 0$$

$$(\lambda - 2)(\lambda^2 - 4) = 0$$

$$(\lambda - 2)^2(\lambda + 2) = 0 \quad \lambda_{1,2} = 2 \quad \lambda_3 = -2$$

$$a_n = (A_n + B)2^n + C(-2)^n$$

$$0 = a_0 = B + C$$

$$1 = a_1 = (A + B)2 - 2C$$

$$2 = a_2 = (2A + B)4 + 4C$$

$$\Rightarrow \begin{aligned} A &= \frac{1}{4} \\ B &= \frac{1}{8} \\ C &= -\frac{1}{8} \end{aligned}$$

$$a_n = \left(\frac{1}{4}n + \frac{1}{8}\right)2^n - \frac{1}{8}(-2)^n$$

Sahovnica

$2 \times n$:



ploščice oblike: A: \square 1×1

B: $\begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array}$ + zacetki

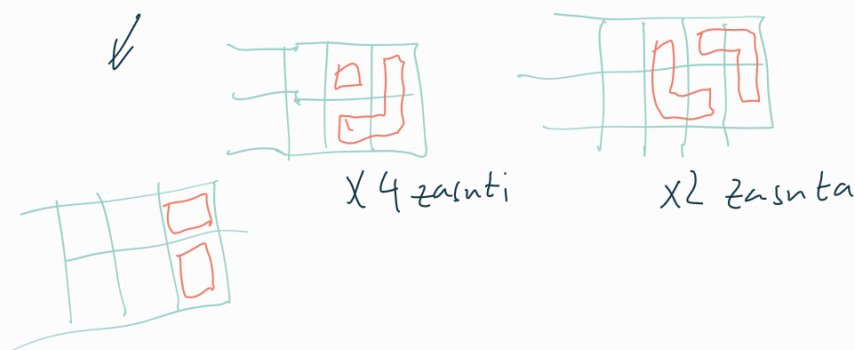
$a_n \dots$ # načinov, da pokrijemo Sahovnico

$2 \times n$ s ploščicami oblike A, B

$$a_0 = 1 \quad a_1 = 1 \quad a_2 = 4 + 1 = 5 \quad a_3 = 1 + 8 + 2 = 11$$

$$a_n = a_{n-1} + 4a_{n-2} + 2a_{n-3}$$

konci:



preizkus: $a_3 = a_2 + 4 \cdot a_1 + a_0 = 11 = 5 + 4 \cdot 1 + 1 = 11 \checkmark$

$$\lambda^3 - \lambda^2 - 4\lambda - 2 = 0$$

...

N

Koliko je nizov dolžine n iz znakov 0,1, ti ne vsebujeje podniza 00?

$$a_0 = 1 \quad a_1 = 2 \quad a_2 = 3 \quad a_3 = 8 - 1 - 1 - 1 = 5$$

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$$a_n = a_{n-1} + a_{n-2}$$



Fibonacci
X

...

N

Kompleksne ničle.

$$\lambda = x + iy = |\lambda| (\cos \varphi + i \sin \varphi)$$

$$\bar{\lambda} = x - iy = |\lambda| (\cos \varphi - i \sin \varphi)$$

N

$$D_n = \begin{pmatrix} bb & 0 & 0 & 0 & 0 & 0 & 0 \\ b & b & b & 0 & 0 & 0 & 0 \\ 0 & b & b & b & 0 & 0 & 0 \\ 0 & 0 & b & b & b & 0 & 0 \\ 0 & 0 & 0 & b & b & b & 0 \\ & & & & & & \vdots \\ & & & & & & 0 & 0 \\ & & & \dots & 0 & 0 & b & b & b & 0 \\ & & & \dots & 0 & 0 & 0 & b & b & b \\ 0 & 0 & & & & & 0 & 0 & b & b \end{pmatrix}$$

$$b > 0$$

$$D_1 = |b| = b$$

$$D_2 = \begin{vmatrix} b & b \\ b & b \end{vmatrix} = 0$$

$$D_3 = \begin{vmatrix} b & b & 0 \\ b & b & b \\ 0 & b & b \end{vmatrix} =$$

...

N

Koliko je nizov dolžine n iz znakov 0,1,2,3, pri katerih se nobena 3 nitoli ne pojavlja nobeno 0.

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$$a_0 = 1 \quad a_1 = 4 \quad a_2 = 4^2 - 1 = 15$$

$$a_3 =$$