

# Algebra 3

15. februára 2021

## Fibonacciho postupnosť

$$F_{n+2} = F_{n+1} + F_n$$

$$F_0 = 0, F_1 = 1$$

$$F_n = \frac{\lambda_1^n - \lambda_2^n}{\sqrt{5}}$$

$$\lambda_{1,2} = \frac{1 \pm \sqrt{5}}{2}$$

## Fibonacci a matice

$$A = \begin{pmatrix} 1 & 1 \\ 1 & 0 \end{pmatrix}$$
$$\begin{pmatrix} F_{n+1} & F_n \\ F_n & F_{n-1} \end{pmatrix} = \begin{pmatrix} 1 & 1 \\ 1 & 0 \end{pmatrix}^n = A^n$$

## Mocnina matice

$$A = P^{-1}DP$$

$$A^n = P^{-1}D^nP$$

$$A^n = P^{-1} \begin{pmatrix} \lambda_1^n & 0 \\ 0 & \lambda_2^n \end{pmatrix} P$$

$$F_n = c_1 \lambda_1^n + c_2 \lambda_2^n$$