

PRO-HW-01 CZ

Jméno:

Body:

1. Vynásobte polynomy f a g

$$f = 1 + 5x + 3x^2 + 2x^4$$

$$g = x^2 - 5$$

2. “Vydělte” polynom f polynomem g

$$f = -2 - 24x - 14x^2 + 5x^3 - 7x^4 + 2x^6$$

$$g = x^2 - 5$$

- 3a. Vypočítejte charakteristický polynom $f(\lambda)$ matice

$$A = \begin{pmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ a & b & c & d \end{pmatrix}$$

- 3b. Pro charakteristický polynom $f(\lambda)$ matice

$$A = \begin{pmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ a & b & c & d \end{pmatrix}$$

najděte řešení rovnice $f(\lambda) = 0$ pro $a = -18$, $b = 9$, $c = 11$, $d = -1$.

4. Viz **your input data** v Brute.

PRO-HW-01 EN

Name:

Points:

1. Multiply the polynomials f and g

$$f = 1 + 5x + 3x^2 + 2x^4$$

$$g = x^2 - 5$$

2. “Divide” polynomial f by polynomial g

$$f = -2 - 24x - 14x^2 + 5x^3 - 7x^4 + 2x^6$$

$$g = x^2 - 5$$

- 3a. Find the characteristic polynomial $f(\lambda)$ of the matrix

$$A = \begin{pmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ a & b & c & d \end{pmatrix}$$

- 3b. For the characteristic polynomial $f(\lambda)$ of the matrix

$$A = \begin{pmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ a & b & c & d \end{pmatrix}$$

find the solution of the equation $f(\lambda) = 0$ for $a = -18$, $b = 9$, $c = 11$, $d = -1$.

4. See **your input data** in Brute.