PKR HW-01 CZ

1. Vynásobte polynomy f a g

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

$$g = x^2 - 5$$

2. "Vydělte" polynom f polynomem g

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

$$g = x^2 - 5$$

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

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

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

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

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

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

K řešení použijte další papíry. Podepište je a přiložte je.

PKR HW-01 EN

1. Multiply the polynomials f and g

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

$$g = x^2 - 5$$

2. "Divide" polynomial f by polynomial g

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

$$g = x^2 - 5$$

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

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

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

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

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.

Use additional paper sheets if necessary.