

2.4 RÝZORACIONÁLNA

DOSADZOVACIA METÓDA

$$x = -2 \quad -30 = B(-2)(-3)(-5) \quad -30D = -30 \quad D = 1$$

243 RYDZOBAC. FCIA

$$\begin{array}{llll} x=1 & 18 = 4 \cdot 3^2 & 9A = 18 & A=2 \\ x=-2 & -3 = -3C & & C=1 \end{array}$$

$$1 = A \cdot 2^2 + B \cdot (-1) \cdot 2 + C \cdot (-1)$$
$$1 = 2 \cdot 4 + B(-2) + 1 \cdot (-1) \quad -2B = -6 \quad B = 3$$

473 NIE JE
REDUKCJONĄ WIA

$$x^2 - 2x + 2 = (x-1)^2 + 1$$

DELIŤE

$$\begin{array}{r} \boxed{x^4} + 5x^3 + 11x^2 + 8x - 7 : \boxed{x^3} + 3x^2 - 4 = x + 2 + \frac{5x^2 + 12x + 1}{x^3 + 3x^2 - 4} \\ - (x^4 + 3x^3 - 4x) \\ \hline 2x^3 + 11x^2 + 12x - 7 \\ - (2x^3 + 6x^2 - 8) \\ \hline 5x^2 + 12x + 1 \end{array}$$

PR 2
RÝDZORAC

PR 4 $R(x) = \frac{5x^2 - 5x + 9}{x^3 - 3x^2 + 4x - 12}$ $2 < 3$

$$\frac{5x^2 - 5x + 9}{(x-3)(x^2+4)} = \frac{A}{x-3} + \frac{Bx+C}{x^2+4} \quad / \cdot (x-3)(x^2+4)$$

$$5x^2 - 5x + 9 = A(x^2+4) + (Bx+C)(x-3)$$

$x=3$

$$39 = 13A \quad A=3$$

$x=0$

$$9 = 3 \cdot 4 + C \cdot (-3) \quad -3C = -3 \quad C=1$$

$x=1$ *skontroluj*

$$9 = 3 \cdot 5 + (B \cdot 1 + 1) \cdot (-2) \quad -2B = -4 \quad B=2$$

$$\frac{5x^2 - 5x + 9}{(x-3)(x^2+4)} = \frac{3}{x-3} + \frac{2x+1}{x^2+4}$$

PR 5 $R(x) = \frac{5x^2 - x + 8}{x^3 + 4x}$ $2 < 3$ *zrých. F.*

$$\frac{5x^2 - x + 8}{x(x^2+4)} = \frac{A}{x} + \frac{Bx+C}{x^2+4} \quad / \cdot x(x^2+4)$$

$$5x^2 - x + 8 = A(x^2+4) + (Bx+C)x$$

$x=0$

$$8 = 4A \quad A=2$$

SÚSTAVA

$x=1$

$$12 = 2 \cdot 5 + (B+C) \cdot 1$$

$x=-1$

$$14 = 2 \cdot 5 + (B+C) \cdot (-1)$$

$$B+C=2$$

$$B-C=4$$

RIEŠIŤE SÚSTAVU

$$B+C=2$$

$$B-C=4$$

SCÍTAME + $2B=6 \quad B=3$

$$C=2-B=2-3=-1$$

$$\frac{5x^2 - x + 8}{x^3 + 4x} = \frac{2}{x} + \frac{3x-1}{x^2+4}$$

PRG $R(x) = \frac{2x^4 + x^3 - x + 1}{x^3 + 1}$

4 > 3
NIE JE RYDZORAC.

$$\begin{array}{r} 2x^4 + x^3 - x + 1 : (x^3 + 1) = 2x + 1 - \frac{3x + 1}{x^3 + 1} \\ - (2x^4 + 2x) \\ \hline x^3 - 3x + 1 \\ - (x^3 + 1) \\ \hline -3x \end{array}$$

RYDZORAC.F

$$\frac{-3x}{(x+1)(x^2-x+1)} = \frac{A}{x+1} + \frac{Bx+C}{x^2-x+1} \quad / \cdot (x+1)(x^2-x+1)$$

$$-3x = A(x^2-x+1) + (Bx+C)(x+1)$$

$x = -1$ $3 = A \cdot 3$ $A = 1$

$x = 0$ $0 = 1 + C$ $C = -1$

$x = 1$ LUBOV. $-3 = 1 \cdot 1 + (B-1) \cdot 2$
 $2B = -2$ $B = -1$

$$\frac{2x^4 + x^3 - x + 1}{x^3 + 1} = 2x + 1 + \frac{1}{x+1} - \frac{x+1}{x^2-x+1}$$

$x^2 - 4x + 4 = (x-2)^2$
 $x^2 - 2x = x(x-2)$

3 < 4 RYDZOR.F.

PR 7

$$R(x) = \frac{3x^3 - 14x^2 + 27x - 16}{(x^2 - 4x + 4) \cdot (x^2 - 2x)} = \frac{3x^3 - 14x^2 + 27x - 16}{(x-2)^2 \cdot x(x-2)}$$

$$\frac{3x^3 - 14x^2 + 27x - 16}{x(x-2)^3} = \frac{A}{x} + \frac{B}{x-2} + \frac{C}{(x-2)^2} + \frac{D}{(x-2)^3}$$

$$3x^3 - 14x^2 + 27x - 16 = A(x-2)^3 + Bx(x-2)^2 + Cx(x-2) + Dx$$

$-16 = -8A$ $A = 2$
 $6 = 2D$ $D = 3$ } $\rightarrow$ DOSADIT'

$x = 0$

$x = 2$

$x = 1$
 $x = -1$ } LUBOVOLNE

$0 = 2(-1) + B \cdot 1 + C(-1) + 3 \rightarrow B - C = -1$
 $-60 = -27 \cdot 2 - B \cdot 9 - C(-3) - 3 \rightarrow 3B - C = 1$

RIEŠIME SÚSTAVU

$$\begin{aligned} B - C &= -1 \\ 3B - C &= 1 \end{aligned}$$

ROZDIEL $\ominus$ $\frac{2B = 2}{B = 1} \quad B = 1$
 $C = B + 1 = 1 + 1 = 2$

$$\frac{3x^3 - 14x^2 + 27x - 16}{x(x-2)^3} = \frac{2}{x} + \frac{1}{x-2} + \frac{2}{(x-2)^2} + \frac{3}{(x-2)^3}$$

PR 8

$$R(x) = \frac{5x^2 - x + 12}{x^3 + x^2 + 3x - 5}$$

2 < 3 RYDZORAC.F.

$$\frac{5x^2 - x + 12}{(x-1)(x^2 + 2x + 5)} = \frac{A}{x-1} + \frac{Bx+C}{x^2 + 2x + 5}$$

$$5x^2 - x + 12 = A(x^2 + 2x + 5) + (Bx + C)(x - 1)$$

POROVNÁVACIA METÓDA $\rightarrow$ ROZVÁSOBNIE

$$\begin{aligned} 5x^2 - x + 12 &= Ax^2 + 2Ax + 5A + Bx^2 - Bx + Cx - C \\ \underline{5x^2 - x + 12} &= (A+B)x^2 + (2A-B+C)x + (5A-C) \end{aligned}$$

POROVNÁME KOEFICIENTY PRI ROVNAKÝCH MOCNINÁCH

$$x^2: \quad 5 = A + B \quad \checkmark$$

$$x^1: \quad -1 = 2A - B + C$$

$$x^0: \quad 12 = 5A - C$$

VYRIEŠIME SÚSTAVU

$$\begin{aligned} \left(\begin{array}{ccc|c} 1 & 1 & 0 & 5 \\ 2 & -1 & 1 & -1 \\ 5 & 0 & -1 & 12 \end{array} \right) & \xrightarrow{\substack{-2R_1 \\ -5R_1}} \left(\begin{array}{ccc|c} 1 & 1 & 0 & 5 \\ 0 & -3 & 1 & -11 \\ 0 & -5 & -1 & -13 \end{array} \right) \cdot (-1) \approx \\ \approx \left(\begin{array}{ccc|c} 1 & 1 & 0 & 5 \\ 0 & 3 & -1 & 11 \\ 0 & 5 & 1 & 13 \end{array} \right) \cdot 3 - 5R_2 & \approx \left(\begin{array}{ccc|c} 1 & 1 & 0 & 5 \\ 0 & 3 & -1 & 11 \\ 0 & 0 & 8 & -16 \end{array} \right) \end{aligned}$$

$$8C = -16$$

$$5 \cdot 3 - 5 \cdot 3 = 0$$

$$C = -2$$

$$3B - C = 11$$

$$A + B = 5$$

$$3B = C + 11 = -2 + 11$$

$$A = 5 - B = 5 - 3 = 2$$

$$3B = 9$$

$$B = 3$$

$$\frac{5x^2 - x + 12}{x^3 + x^2 + 3x - 5} = \frac{2}{x-1} + \frac{3x-2}{x^2 + 2x + 5}$$