

11. Polinomu dalīšana

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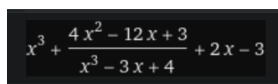
2022-05-19

1. Uzdevums

Izdaliet polinomu $x^6 - x^4 + x^3 - 2x^2 + 5x - 9$ ar polinomu $x^3 - 3x + 4$, iegūstot dalījumu un atlikumu. Rezultātu pārbaudiet ar WolframAlpha.

$$\begin{array}{r} x^3 + 2x \\ x^3 - 3x + 4 \overline{) x^6 - x^4 + x^3 - 2x^2 + 5x - 9} \\ \underline{-x^6 + 3x^4 - 4x^3} \\ 2x^4 - 3x^3 - 2x^2 + 5x \\ \underline{-2x^4} + 6x^2 - 8x \\ - 3x^3 + 4x^2 - 3x - 9 \\ \underline{3x^3} - 9x + 12 \\ 4x^2 - 12x + 3 \end{array}$$

$$\frac{x^6 - x^4 + x^3 - 2x^2 + 5x - 9}{x^3 - 3x + 4} = x^3 + 2x - 3 + \frac{4x^2 - 12x + 3}{x^3 - 3x + 4}$$


$$x^3 + \frac{4x^2 - 12x + 3}{x^3 - 3x + 4} + 2x - 3$$

2. Uzdevums

Izdaliet polinomu $6x^4 - 5x^3 - 4x^2 + 23x - 27$ ar polinomu $2x^2 - 3x + 4$, iegūstot dalījumu un atlikumu. Rezultātu pārbaudiet ar WolframAlpha.

$$\begin{array}{r}
 3x^2 + 2x - 5 \\
 2x^2 - 3x + 4 \overline{) \begin{array}{r} 6x^4 - 5x^3 - 4x^2 + 23x - 27 \\ - 6x^4 + 9x^3 - 12x^2 \\ \hline 4x^3 - 16x^2 + 23x \\ - 4x^3 + 6x^2 - 8x \\ \hline - 10x^2 + 15x - 27 \\ 10x^2 - 15x + 20 \\ \hline - 7 \end{array}}
 \end{array}$$

$$\frac{6x^4 - 5x^3 - 4x^2 + 23x - 27}{2x^2 - 3x + 4} = 3x^2 + 2x - 5 + \frac{-7}{2x^2 - 3x + 4}$$

$$3x^2 - \frac{7}{2x^2 - 3x + 4} + 2x - 5$$

3. Uzdevums

Uzbūvējiet 5.pakāpes polinomu, kam nav divu vienādu koeficientu, un kas, dalot to ar x^2+x+1 , dod atlikumā $x+1$.

$$\begin{array}{r}
 x^3 + 2x^2 + 3x + 4 \\
 x^2 + x + 1 \overline{) \begin{array}{r} x^5 + 3x^4 + 6x^3 + 9x^2 + 8x + 5 \\ - x^5 - x^4 - x^3 \\ \hline 2x^4 + 5x^3 + 9x^2 \\ - 2x^4 - 2x^3 - 2x^2 \\ \hline 3x^3 + 7x^2 + 8x \\ - 3x^3 - 3x^2 - 3x \\ \hline 4x^2 + 5x + 5 \\ - 4x^2 - 4x - 4 \\ \hline x + 1 \end{array}}
 \end{array}$$

$$\frac{x^5 + 3x^4 + 6x^3 + 9x^2 + 8x + 5}{x^2 + x + 1} = x^3 + 2x^2 + 3x + 4 + \frac{x + 1}{x^2 + x + 1}$$