

Impartirea polinoamelor

[pag 118] (manual)

$$(c)(e) \quad \begin{array}{r} x^4 + i x^2 + x + i \quad | \quad x + 1 \\ - x^4 - x^3 \\ \hline -x^3 + i x^2 + x + i \\ \quad \underline{x^3 + x^2} \end{array}$$

$$\begin{array}{r} x^2(1+i) + x + i \\ - x^2(1+i) - x(1+i) \\ \hline -ix + i \\ + ix + i \\ \hline 2i \end{array}$$

$$\underline{x^2 + ix = x^2(1+i)}$$

$$\begin{aligned} x - x(1+i) &= x(1-i) \\ &= x \cdot (-i) = -i \cdot x \end{aligned}$$

$$\begin{aligned} q &= x^3 - x^2 + x(1+i) - i \\ r &= 2i \end{aligned}$$

$$f) \begin{array}{r} x^4 + (1+i)x^3 - ix + 1 \\ - x^4 - ix^2 \\ \hline \end{array} \quad \begin{array}{r} x^2 + i \\ \hline x^2 + (1+i)x - i \end{array}$$

$$\begin{array}{r} (1+i)x^3 - ix^2 - ix + 1 \\ - (1+i)x^3 + (i-1)x \\ \hline \end{array}$$

$$\begin{array}{r} -ix^2 - (i-1)x - ix + 1 \\ ix^2 \quad + 1 \\ \hline \end{array}$$

$$\begin{array}{r} -(i-1)x - ix + 1 \\ -(i+1)x - ix + 2 \\ \hline (1-i)x - ix + 2 \end{array}$$

$$\begin{aligned} i(1+i) \cdot x &= \\ = (i+i^2)x &= \\ = (i-1)x &= \\ -i^2 &= -(-1) = 1 \end{aligned}$$

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

$$r = (1-i)x - i + 2$$

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$$f = x^3 + x^2 + \hat{1}; g = x + \hat{2};$$

$$7L_3 = \{ \hat{0}, \hat{1}, \hat{2} \}$$

$$\begin{array}{r} x^3 + x^2 + \hat{1} \\ \hat{2} x^3 + x^2 \\ \hline \hat{2} x^2 + \hat{1} \\ x^2 + \hat{2} x \end{array}$$

$$\begin{array}{r} x + \hat{2} \\ \hline x^2 + \hat{2} x + \hat{2} \\ \hline g = x + \hat{2} x + \hat{2} \\ r = 0 \end{array}$$

$$\begin{array}{r} \hat{2} x + \hat{1} \\ x + \hat{2} \\ \hline \end{array}$$

$$\begin{array}{r} 1 \quad 4 \quad 3 \\ 4 \quad ; \quad 3 \quad | \quad 3 \\ \hline 1 \quad 1 \quad | \quad 5 \quad 3 \\ \hline 1 \quad 3 \quad | \quad 1 \\ \hline 4 \end{array}$$

$$\begin{array}{l} \hat{1} \\ \hat{1} = \{ 1, 4, 7, 10, \dots \} \end{array} \quad \begin{array}{l} \hat{2} \\ \hat{2} = \{ 5, 8, 11, 14, \dots \} \end{array}$$

$$\begin{aligned} -x^3 &= -\hat{1} - x^3 = \\ &= (\hat{0} \quad \hat{1}) x^3 = \\ &= (\hat{3} \quad -\hat{1}) x^3 = \hat{2} x^3 \\ \hat{2} x^2 &= (\hat{0} \quad \hat{2}) x^2 \\ (\hat{3} \quad -\hat{2}) x^2 &= x^2 \\ -\hat{2} x^2 &= \hat{1} x^2 \\ \hat{1} x &= (\hat{0} \quad \hat{1}) x \end{aligned}$$