

### 3.2

$$1) \quad \begin{array}{r} 1 \quad 1 \quad 1 \quad 1 \quad 1 \\ \quad 1 \quad 2 \quad 3 \quad 4 \\ \hline 1 \quad 2 \quad 3 \quad 4 \quad \parallel \quad 5 \end{array}$$

$$x^4 + x^3 + x^2 + x + 1 = (x - 1)(x^3 + 2x^2 + 3x + 4) + 5$$

$$2) \quad \begin{array}{r} 1 \quad -4 \quad -12 \quad 2 \quad 4 \\ \quad -2 \quad 12 \quad 0 \quad -4 \\ \hline 1 \quad -6 \quad 0 \quad 2 \quad \parallel \quad 0 \end{array}$$

$$x^4 - 4x^3 - 12x^2 + 2x + 4 = (x + 2)(x^3 - 6x^2 + 2)$$

$$3) \quad \begin{array}{r} 3 \quad -8 \quad 7 \quad 1 \quad -5 \quad 6 \\ \quad -6 \quad 28 \quad -70 \quad 138 \quad -266 \\ \hline 3 \quad -14 \quad 35 \quad -69 \quad 133 \quad \parallel \quad -260 \end{array}$$

$$3x^5 - 8x^4 + 7x^3 + x^2 - 5x + 6 = (x + 2)(3x^4 - 14x^3 + 35x^2 - 69x + 133) - 260$$

$$4) \quad \begin{array}{r} 3 \quad -5 \quad 3 \quad 3 \quad -4 \\ \quad 3 \quad -2 \quad 1 \quad 4 \\ \hline 3 \quad -2 \quad 1 \quad 4 \quad \parallel \quad 0 \end{array}$$

$$3x^4 - 5x^3 + 3x^2 + 3x - 4 = (x - 1)(3x^3 - 2x^2 + x + 4)$$

$$5) \quad \begin{array}{r} 2 \quad -11 \quad 16 \quad -2 \quad -4 \quad 3 \\ \quad 6 \quad -15 \quad 3 \quad 3 \quad -3 \\ \hline 2 \quad -5 \quad 1 \quad 1 \quad -1 \quad \parallel \quad 0 \end{array}$$

$$2x^5 - 11x^4 + 16x^3 - 2x^2 - 4x + 3 = (x - 3)(2x^4 - 5x^3 + x^2 + x - 1)$$

$$6) \quad \begin{array}{r} 1 \quad 9 \quad 26 \quad 25 \\ \quad -3 \quad -18 \quad -24 \\ \hline 1 \quad 6 \quad 8 \quad \parallel \quad 1 \end{array}$$

$$x^3 + 9x^2 + 26x + 25 = (x + 3)(x^2 + 6x + 8) + 1$$