

Long Divisions with Polynomials

Solve the following by long division. One is done for you.

$$\begin{array}{r} \textcircled{1} \quad x^3 - 3x^2 + 6x - 4 \\ 2x - 3 \overline{) 2x^4 - 9x^3 + 21x^2 - 26x + 12} \\ \underline{(-)2x^4 - 3x^3} \\ -6x^3 + 21x^2 - 26x + 12 \\ \underline{(-)-6x^3 + 9x^2} \\ 12x^2 - 26x + 12 \\ \underline{(-)12x^2 - 18x} \\ -8x + 12 \\ \underline{(-)-8x + 12} \\ 0 \end{array}$$

$$\textcircled{2} \quad x - 2 \overline{) 5x^3 - 13x^2 + 10x - 8}$$

$$\textcircled{3} \quad x^2 + 3x - 5 \overline{) x^4 + 4x^3 + x - 10}$$

$$\textcircled{4} \quad x - 3 \overline{) x^4 - 3x^3 + 27x - 81}$$

$$\textcircled{5} \quad x - 2 \overline{) 2x^3 + 15x^2 - 14x - 48}$$

$$\textcircled{6} \quad x - 2 \overline{) 2x^3 - 8x^2 + 9x - 2}$$

Long Divisions with Polynomials

Answers

$$\begin{array}{r} \textcircled{1} \quad \frac{x^3 - 3x^2 + 6x - 4}{2x - 3} \overline{) 2x^4 - 9x^3 + 21x^2 - 26x + 12} \\ \underline{(-)2x^4 - 3x^3} \\ -6x^3 + 21x^2 - 26x + 12 \\ \underline{(-)-6x^3 + 9x^2} \\ 12x^2 - 26x + 12 \\ \underline{(-)12x^2 - 18x} \\ -8x + 12 \\ \underline{(-)-8x + 12} \\ 0 \end{array}$$

$$\textcircled{2} \quad \frac{5x^2 - 3x + 4}{x - 2} \overline{) 5x^3 - 13x^2 + 10x - 8}$$

$$\textcircled{3} \quad \frac{x^2 + x + 2}{x^2 + 3x - 5} \overline{) x^4 + 4x^3 + x - 10}$$

$$\textcircled{4} \quad \frac{x^3 + 27}{x - 3} \overline{) x^4 - 3x^3 + 27x - 81}$$

$$\textcircled{5} \quad \frac{2x^2 + 19x + 24}{x - 2} \overline{) 2x^3 + 15x^2 - 14x - 48}$$

$$\textcircled{6} \quad \frac{2x^2 - 4x + 1}{x - 2} \overline{) 2x^3 - 8x^2 + 9x - 2}$$