

$$\frac{4x^3 + 3x^2 + 2x + 1}{x-1} = \begin{array}{r} 4x^2 + 7x + 9 \\ x-1 \overline{) 4x^3 + 3x^2 + 2x + 1} \\ \underline{-(4x^3 - 4x^2)} \downarrow \\ 0 7x^2 + 2x \\ \underline{-(7x^2 - 7x)} \downarrow \\ 0 9x + 1 \\ \underline{-(9x - 9)} \\ 0 10 \end{array}$$

$$= 4x^2 + 7x + 9 + \frac{10}{x-1}$$

$$\frac{4x^3 + 3x^2 + 2x + 1}{x^2 + x - 1} = \begin{array}{r} 4x - 1 \\ x^2 + x - 1 \overline{) 4x^3 + 3x^2 + 2x + 1} \\ \underline{-(4x^3 + 4x^2 - 4x)} \downarrow \\ 0 -x^2 + 6x + 1 \\ \underline{-(-x^2 - x + 1)} \\ 0 7x + 0 \end{array}$$

$$= 4x - 1 + \frac{7x}{x^2 + x - 1}$$

$$\frac{4x^3 + 3x^2 + 2x + 1}{x^2 - 1} = x^2 + 0x - 1 \overline{) 4x^3 + 3x^2 + 2x + 1}$$

$$\begin{array}{r} 4x + 3 \\ \underline{4x^3 + 0x^2 - 4x} \\ 0 3x^2 + 6x + 1 \\ \underline{-(3x^2 + 0x - 3)} \\ 0 6x + 4 \end{array}$$

$$= 4x + 3 + \frac{6x + 4}{x^2 - 1}$$

$$\frac{4x^3 + 2x + 1}{x^2 + x - 1} = x^2 + x - 1 \overline{) 4x^3 + 0x^2 + 2x + 1}$$

$$\begin{array}{r} 4x - 4 \\ \underline{4x^3 + 4x^2 - 4x} \\ 0 -4x^2 + 6x + 1 \\ \underline{-(-4x^2 - 4x + 4)} \\ 0 +10x - 3 \end{array}$$

$$= 4x - 4 + \frac{10x - 3}{x^2 + x - 1}$$

$$\frac{4x^3 + 1}{x^2 - 1} = x^2 + 0x - 1 \overline{) 4x^3 + 0x^2 + 0x + 1}$$

$$\begin{array}{r} 4x \\ \underline{4x^3 + 0x^2 - 4x} \\ 0 0 4x + 1 \end{array}$$

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