

a)

$$\begin{array}{r}
 +1 x^5 \quad -7 x^4 \quad +1 x^3 \quad 0 x^2 \quad 0 x \quad -8 \\
 \hline
 -1 x^5 \quad +3 x^4 \quad -1 x^3 \\
 \hline
 -4 x^4 \quad 0 x^3 \quad 0 x^2 \\
 +4 x^4 \quad -12 x^3 \quad +4 x^2 \\
 \hline
 -12 x^3 \quad +4 x^2 \quad 0 x \\
 +12 x^3 \quad -36 x^2 \quad +12 x \\
 \hline
 -32 x^2 \quad +12 x \quad -8 \\
 +32 x^2 \quad -96 x \quad +32 \\
 \hline
 -84 x \quad +24
 \end{array}$$

$$\begin{array}{r}
 x^2 - 3x + 1 \\
 \hline
 1 x^3 - 4 x^2 - 12 x - 32
 \end{array}$$

b)

$$\begin{array}{r}
 4x^5 + 20x^4 - 18x^3 - 28x^2 + 28x - 6 \\
 \underline{-4x^5 - 20x^4 + 12x^3} \\
 0x^4 - 6x^3 - 28x^2 + 28x \\
 \underline{+6x^3 + 30x^2 - 18x} \\
 +2x^2 + 10x - 6 \\
 \underline{-2x^2 - 10x + 6} \\
 0x^2 + 0x + 0
 \end{array}
 \qquad
 \begin{array}{r}
 x^2 + 5x - 3 \\
 \underline{4x^3 - 6x + 2}
 \end{array}$$

c)

$$\begin{array}{r}
 6x^4 + 3x^3 + 0x^2 - 2x + 0 \\
 \underline{-6x^4 + 18x^3 - 6x^2} \\
 21x^3 - 6x^2 - 2x \\
 \underline{-21x^3 + 63x^2 - 21x} \\
 57x^2 - 23x + 0 \\
 \underline{-57x^2 + 171x - 57} \\
 148x - 57
 \end{array}
 \qquad
 \begin{array}{r}
 x^2 - 3x + 1 \\
 \underline{6x^2 + 21x + 57}
 \end{array}$$

d)

$$\begin{array}{r} +45x^5 \quad 0x^4 \quad +120x^3 \quad 0x^2 \quad +80x \quad 0 \\ \underline{-45x^5} \quad \underline{-60x^3} \quad \\ 0x^4 \quad +60x^3 \quad 0x^2 \quad +80x \\ \quad \underline{-60x^3} \quad \underline{-80x} \\ 0x^2 \quad 0x \quad 0 \end{array}$$
$$\begin{array}{r} 3x^2 + 4 \\ \underline{15x^3 + 20x} \end{array}$$