

$$x^3 - 5x - 1$$

$$\begin{array}{r}
 x^3 + 3x^2 - 5x - 1 \\
 + 3x^2 - 9x \\
 \hline
 4x^2 - 14x - 1 \\
 - 4x^2 + 12x \\
 \hline
 -2x - 1 \\
 + 2x \\
 \hline
 -1
 \end{array}$$

8

$$\begin{array}{r}
 x^9 - 2x^8 + 4x^7 - 8x^6 + 16x^5 - 32x^4 + 64x^3 - 128x^2 \\
 x^9 - 10x^8 + 10x^7 + 0x^6 + 0x^5 + 0x^4 + 0x^3 + 0x^2 + 0x - 10^8 \\
 \hline
 12x^9 + 4x^8 + 4x^7 + 4x^6 + 4x^5 + 4x^4 + 4x^3 + 4x^2 + 4x - 10^8 \\
 - 2x^9 \\
 \hline
 10x^9 + 4x^8 + 4x^7 + 4x^6 + 4x^5 + 4x^4 + 4x^3 + 4x^2 + 4x - 10^8
 \end{array}$$

$$\begin{array}{r}
 12x^9 + 4x^8 + 4x^7 + 4x^6 + 4x^5 + 4x^4 + 4x^3 + 4x^2 + 4x - 10^8 \\
 - 2x^9 \\
 \hline
 10x^9 + 4x^8 + 4x^7 + 4x^6 + 4x^5 + 4x^4 + 4x^3 + 4x^2 + 4x - 10^8
 \end{array}$$

$$\begin{array}{r}
 10x^9 + 4x^8 + 4x^7 + 4x^6 + 4x^5 + 4x^4 + 4x^3 + 4x^2 + 4x - 10^8 \\
 - 16x^9 - 32x^8 \\
 \hline
 -32x^8 + 4x^7 + 4x^6 + 4x^5 + 4x^4 + 4x^3 + 4x^2 + 4x - 10^8
 \end{array}$$

$$\begin{array}{r}
 -32x^8 + 4x^7 + 4x^6 + 4x^5 + 4x^4 + 4x^3 + 4x^2 + 4x - 10^8 \\
 + 64x^8 + 128x^7 \\
 \hline
 32x^8 + 132x^7 + 4x^6 + 4x^5 + 4x^4 + 4x^3 + 4x^2 + 4x - 10^8
 \end{array}$$

$$\begin{array}{r}
 32x^8 + 132x^7 + 4x^6 + 4x^5 + 4x^4 + 4x^3 + 4x^2 + 4x - 10^8 \\
 + 128x^8 + 256x^7 \\
 \hline
 160x^8 + 388x^7 + 4x^6 + 4x^5 + 4x^4 + 4x^3 + 4x^2 + 4x - 10^8
 \end{array}$$

$$\begin{array}{r}
 160x^8 + 388x^7 + 4x^6 + 4x^5 + 4x^4 + 4x^3 + 4x^2 + 4x - 10^8 \\
 - 512x^8 - 1024x^7 \\
 \hline
 -352x^8 - 636x^7 + 4x^6 + 4x^5 + 4x^4 + 4x^3 + 4x^2 + 4x - 10^8
 \end{array}$$

1250x

$$x^2 - x + 3 \mid x^6 + 5x^4 + 3x^2 - 2x$$

$$x^6 + 2x^4 - 3x^4$$

$$+ x^2 + 2x^4 + 3x^3$$

$$- x^2 + x^4 - 3x^3$$

$$+ 3x^4 - 3x^3$$

$$- 3x^4 + 3x^3 - 6x^2$$

$$- 6x^2 - 2x$$

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$$x^2 - 3x + 6$$

$$(5) \quad x^2 + 3x - 2 \mid x^4 - 2x^3 - 11x^2 + 30x - 20$$

$$x^4 - 3x^3 + 2x^2$$

$$- 5x^3 - 9x^2 + 30x$$

$$+ 5x^3 + 15x^2 + 10x$$

$$+ 6x^2 + 40x - 20$$

$$= 6x^2 - 18x + 2$$

$$+ 22x - 8$$

$$\begin{array}{r}
 \textcircled{4} \quad x^4 + x^3 + 3x^2 \\
 \hline
 x^2 - x + 3 \quad \Big| \quad x^6 + 5x^4 + 3x^2 - 2x \\
 \underline{x^6 + x^5 - 3x^4} \\
 \phantom{x^6 +} + x^4 + 2x^3 \\
 \underline{-x^5 + 2x^4 - 3x^3} \\
 \phantom{-x^5 +} + 3x^4 - 3x^3 \\
 \underline{-3x^4 + 3x^3 - 6x^2} \\
 \phantom{-3x^4 +} -6x^2 - 2x
 \end{array}$$

$$\begin{array}{r}
 \textcircled{3} \quad x^2 + 3x - 2 \quad \Big| \quad x^4 + 2x^3 - 11x^2 + 30x - 20 \\
 \underline{x^4 - 3x^3 + 2x^2} \\
 \phantom{x^4 -} 5x^3 - 9x^2 + 30x \\
 \underline{+ 5x^3 - 15x^2 + 10x} \\
 \phantom{+ 5x^3 -} -24x^2 + 40x - 20 \\
 \underline{+ 24x^2 + 72x - 48} \\
 \phantom{+ 24x^2 +} 112x - 68
 \end{array}$$

$$\begin{array}{r}
 \textcircled{1} \quad \frac{1}{2} AB^2 \quad \Big| \quad \frac{2}{3} A^2 B^2 - \frac{1}{4} A^2 B^4 + \frac{5}{6} AB^4 - \frac{2}{3} B^5 \\
 \underline{-\frac{1}{2} A^2 B^2} \\
 \phantom{-\frac{1}{2} A^2 B^2} -\frac{1}{4} A^2 B^4 \\
 \underline{+\frac{1}{4} A^2 B^4} \\
 \phantom{+\frac{1}{4} A^2 B^4} \frac{5}{6} AB^4 \\
 \underline{-\frac{2}{3} AB^4} \\
 \phantom{-\frac{2}{3} AB^4} -\frac{1}{3} B^5
 \end{array}$$

$$\begin{array}{r} \phantom{3A} \overline{) 3A^3 + 5A^2 - 4} \\ \underline{-3A^3} \phantom{-4} \\ \phantom{3A} + 5A^2 \phantom{-4} \\ \underline{-6A^2} \phantom{-4} \\ \phantom{3A} \phantom{+ 5A^2} - 0A^2 - 4 \end{array}$$