Polynomial Long Division Examples

$(n^3 - 2n^2 + 2n - 6) \div (n - 1)$

$n^2 - n + 1 - \frac{5}{n-1}$

$n-1 \overline{)\, n^3 - 2n^2 + 2n - 6}$

$-(n^3 - n^2)$

$-n^2 + 2n$

$-(-n^2 + n)$

$n - 6$

$-(n - 1)$

-5

$(4k^3 - 19k^2 + 17k - 16) \div (k - 4)$

$4k^2 - 3k + 5 + \frac{4}{k-4}$

$k-4 \overline{)\, 4k^3 - 19k^2 + 17k - 16}$

$-(4k^3 - 16k^2)$

$-3k^2 + 17k$

$-(-3k^2 + 12k)$

$5k - 16$

$-(5k - 20)$

4

Missing a Term:

$y^5 \quad y^4 \quad y^3 \quad y^2 \quad y^1 \quad y^0$

$(v^3 + 2v^2 - 2) \div (v + 2)$

$+0v^1$

$$\begin{array}{r} v^2 + 0 - \frac{2}{v+2} \\ v+2 \overline{)\, v^3 + 2v^2 + 0v - 2} \\ -(v^3 + 2v^2) \\ \hline 0 + 0v \\ \hline -2 \end{array}$$

$$v^2 - \frac{2}{v+2}$$

$(x^4 - 17x^2 - 9x - 19) \div (x + 4)$

$0x^3$

$$\begin{array}{r} x^3 - 4x^2 - x - 5 + \frac{1}{x+4} \\ x+4 \overline{)\, x^4 + 0x^3 - 17x^2 - 9x - 19} \\ -(x^4 + 4x^3) \\ \hline -4x^3 - 17x^2 \\ -(-4x^3 - 16x^2) \\ \hline -x^2 - 9x \\ -(-x^2 - 4x) \\ \hline -5x - 19 \\ -(-5x - 20) \\ \hline 1 \end{array}$$

$$(10a^3 + 49a^2 - 64a - 85) \div (10a + 9)$$

$$\begin{array}{r} a^2 + 4a - 10 + \frac{5}{10a+9} \\ 10a+9 \overline{\big)\ 10a^3 + 49a^2 - 64a - 85} \\ -(10a^3 + 9a^2) \\ \hline 40a^2 - 64a \\ -(40a^2 + 360a) \\ \hline -100a - 85 \\ -(-100a - 90) \\ \hline 5 \end{array}$$