Dividing Polynomials

Synthetic Division

$(2x^3 - 5x^2 + 5x - 2) \div (x - 1)$

1	2	-5	5	-2
	↓	2	-3	2
	2	-3	2	0

$2x^2 - 3x + 2$

$(5x^3 - 13x^2 + 10x - 8) \div (x - 2)$

$$\begin{array}{r|cccc} 2 & 5 & -13 & 10 & -8 \\ & \downarrow & 10 & -6 & 8 \\ \hline & 5 & -3 & 4 & 0 \end{array}$$

$5x^2 - 3x + 4$

$(3x^3+7x^2-4x+3)\div(x+3)$

$$\begin{array}{r|cccc} -3 & 3 & 7 & -4 & 3 \\ & \downarrow & -9 & 6 & -6 \\ \hline & 3 & -2 & 2 & -3 \end{array}$$

$3x^2-2x+2-\frac{3}{x+3}$

$(2x^2 - 5x - 4) \div (x - 3)$

$$\begin{array}{r|rrr} 3 & 2 & -5 & -4 \\ & \downarrow & 6 & 3 \\ \hline & 2 & 1 & -1 \end{array}$$

$2x + 1 - \frac{1}{x-3}$

$(x^2 + 5x - 12) \div (x - 3)$

$$\begin{array}{r|rrr} 3 & 1 & 5 & -12 \\ & \downarrow & 3 & 24 \\ \hline & 1 & 8 & 12 \end{array}$$

$$x + 8 + \frac{12}{x-3}$$