Aufgabe 1:
Berechnen die folgenden Polynomdivisionen
a) $2x^2 - 5x + 3 : (x - \frac{3}{2})$

b) $3x^2 - 14x + 15 : (x - \frac{5}{3})$

c) $5x^2 - 32x + 35 : (x - \frac{7}{5})$

d) $7x^2 - 58x + 63 : (x - \frac{9}{7})$

e) $9x^2 - 92x + 99 : (x - \frac{11}{9})$

f) $12x^2 + 25x + 12 : (x + \frac{3}{4})$

g) $12x^2 - 7x - 12 : (x - \frac{4}{3})$

h) $15x^2 - 34x + 15 : (x - \frac{3}{5})$

i) $15x^2 + 16x - 15 : (x + \frac{5}{3})$

j) $21x^2 - 58x + 21 : (x - \frac{3}{7})$

Aufgabe 2:
Berechnen die folgenden Polynomdivisionen
a) $2x^2 - 11x + 12 : (x - \frac{3}{2})$

b) $2x^2 - 13x + 20 : (x - \frac{5}{2})$

c) $3x^2 + 22x - 45 : (x - \frac{5}{3})$

d) $3x^2 - 25x + 42 : (x - \frac{7}{3})$

e) $2x^2 + 11x - 21 : (x - \frac{3}{2})$

f) $9x^2 + 9x - 10 : (x - \frac{2}{3})$

g) $8x^2 + 6x - 9 : (x - \frac{3}{4})$

h) $25x^2 - 5x - 12 : (x + \frac{3}{5})$

i) $18x^2 - 27x + 10 : (x - \frac{5}{6})$

j) $12x^2 + 4x - 5 : (x - \frac{1}{2})$

Lösungen
Aufgabe 1:

a) $2x^2 - 5x + 3 : \left(x - \frac{3}{2}\right) = \left(2x - 2\right)$

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

b) $3x^2 - 14x + 15 : \left(x - \frac{5}{3}\right) = \left(3x - 9\right)$

$$\begin{array}{r} \underline{-\,3x^2 + 5x} \\ -\,9x + 15 \\ \underline{9x - 15} \\ 0 \end{array}$$

c) $5x^2 - 32x + 35 : \left(x - \frac{7}{5}\right) = \left(5x - 25\right)$

$$\begin{array}{r} \underline{-\,5x^2 + 7x} \\ -\,25x + 35 \\ \underline{25x - 35} \\ 0 \end{array}$$

d) $7x^2 - 58x + 63 : \left(x - \frac{9}{7}\right) = \left(7x - 49\right)$

$$\begin{array}{r} \underline{-\,7x^2 + 9x} \\ -\,49x + 63 \\ \underline{49x - 63} \\ 0 \end{array}$$

e) $9x^2 - 92x + 99 : \left(x - \frac{11}{9}\right) = \left(9x - 81\right)$

$$\begin{array}{r} \underline{-\,9x^2 + 11x} \\ -\,81x + 99 \\ \underline{81x - 99} \\ 0 \end{array}$$

f) $12x^2 + 25x + 12 : \left(x + \frac{3}{4}\right) = \left(12x + 16\right)$

$$\begin{array}{r} \underline{-\,12x^2 - 9x} \\ 16x + 12 \\ \underline{-\,16x - 12} \\ 0 \end{array}$$

g) $12x^2 - 7x - 12 : \left(x - \frac{4}{3}\right) = \left(12x + 9\right)$

$$\begin{array}{r} \underline{-\,12x^2 + 16x} \\ 9x - 12 \\ \underline{-\,9x + 12} \\ 0 \end{array}$$

h) $15x^2 - 34x + 15 : \left(x - \frac{3}{5}\right) = \left(15x - 25\right)$

$$\begin{array}{r} \underline{-\,15x^2\ \ +9x} \\ -25x+15 \\ \underline{\ \ 25x-15} \\ 0 \end{array}$$

i) $15x^2 + 16x - 15 : \left(x + \frac{5}{3}\right) = \left(15x - 9\right)$

$$\begin{array}{r} \underline{-\,15x^2-25x} \\ -9x-15 \\ \underline{\ \ 9x+15} \\ 0 \end{array}$$

j) $21x^2 - 58x + 21 : \left(x - \frac{3}{7}\right) = \left(21x - 49\right)$

$$\begin{array}{r} \underline{-\,21x^2\ \ +9x} \\ -49x+21 \\ \underline{\ \ 49x-21} \\ 0 \end{array}$$

Aufgabe 2:

a) $2x^2 - 11x + 12 : \left(x - \frac{3}{2}\right) = \left(2x - 8\right)$

$$\begin{array}{r} -2x^2 + 3x \\ \hline -8x + 12 \\ 8x - 12 \\ \hline 0 \end{array}$$

b) $2x^2 - 13x + 20 : \left(x - \frac{5}{2}\right) = \left(2x - 8\right)$

$$\begin{array}{r} -2x^2 + 5x \\ \hline -8x + 20 \\ 8x - 20 \\ \hline 0 \end{array}$$

c) $3x^2 + 22x - 45 : \left(x - \frac{5}{3}\right) = \left(3x + 27\right)$

$$\begin{array}{r} -3x^2 + 5x \\ \hline 27x - 45 \\ -27x + 45 \\ \hline 0 \end{array}$$

d) $3x^2 - 25x + 42 : \left(x - \frac{7}{3}\right) = \left(3x - 18\right)$

$$\begin{array}{r} -3x^2 + 7x \\ \hline -18x + 42 \\ 18x - 42 \\ \hline 0 \end{array}$$

e) $2x^2 + 11x - 21 : \left(x - \frac{3}{2}\right) = \left(2x + 14\right)$

$$\begin{array}{r} -2x^2 + 3x \\ \hline 14x - 21 \\ -14x + 21 \\ \hline 0 \end{array}$$

f) $9x^2 + 9x - 10 : \left(x - \frac{2}{3}\right) = \left(9x + 15\right)$

$$\begin{array}{r} -9x^2 + 6x \\ \hline 15x - 10 \\ -15x + 10 \\ \hline 0 \end{array}$$

g) $8x^2 + 6x - 9 : \left(x - \frac{3}{4}\right) = \left(8x + 12\right)$

$$\begin{array}{r} -8x^2 + 6x \\ \hline 12x - 9 \\ -12x + 9 \\ \hline 0 \end{array}$$

h) $25x^2 - 5x - 12 : \left(x + \frac{3}{5}\right) = \left(25x - 20\right)$

$$\begin{array}{r} -25x^2 - 15x \\ \hline -20x - 12 \\ 20x + 12 \\ \hline 0 \end{array}$$

i) $18x^2 - 27x + 10 : \left(x - \frac{5}{6}\right) = \left(18x - 12\right)$

$$\begin{array}{r} -18x^2 + 15x \\ \hline -12x + 10 \\ 12x - 10 \\ \hline 0 \end{array}$$

j) $12x^2 + 4x - 5 : \left(x - \frac{1}{2}\right) = \left(12x + 10\right)$

$$\begin{array}{r} -12x^2 + 6x \\ \hline 10x - 5 \\ -10x + 5 \\ \hline 0 \end{array}$$

Quelle: Polynomdivision