

**Polynomdivision bei gebrochen-rationalen Funktionen - Lösung**

1.

$$(4x^2 + 12x - 5) : (2x + 1) = 2x + 5 - \frac{10}{2x+1} \quad \text{also schräge Asymptote: } y = 2x + 5$$

$$\begin{array}{r} -(4x^2 + 2x) \\ \hline 10x - 5 \\ -(10x + 5) \\ \hline -10 \end{array}$$

2.

$$(6x^3 - 2x + 6) : (-2x^2 + 4x) = -3x - 6 + \frac{22x+6}{-2x^2+4x} \quad \text{also } g(x) = -3x - 6 + \frac{22x+6}{-2x^2+4x}$$

$$\begin{array}{r} -(6x^3 - 12x^2) \\ \hline 12x^2 - 2x \\ -(12x^2 - 24x) \\ \hline 22x + 6 \end{array}$$

3.

$$(5x^3 - 8) : (x^2 - 3) = 5x + \frac{15x-8}{x^2-3}$$

$$\begin{array}{r} -(5x^3 - 15x) \\ \hline 15x - 8 \end{array}$$

4.

$$k(x) = 3x - 2 + \frac{5}{x-1} \quad \text{also schräge Asymptote: } y = 3x - 2$$

$$k(x) = \frac{(3x - 2) \cdot (x - 1)}{x - 1} + \frac{5}{x - 1} = \frac{3x^2 - 3x - 2x + 2 + 5}{x - 1} = \frac{3x^2 - 5x + 7}{x - 1}$$