S.13 | G15 **Hausaufgabe, 25.09.09**

Ausmultiplizieren

a) $(x-2)\cdot(x+5) = x^2+5x-2x-10 = \underline{\underline{x^2+3x-10}}$

b) $(x^2-x-1)\cdot(x-1) = x^3-x^2-x^2+x-x+1$

$= \underline{\underline{x^3-2x^2+1}}$

Polynomdivision

c) $(x^2+3x-10):(x+5) = \underline{\underline{x-2}}$

$-x^2-5x$

$-2x-10$

$+2x+10$

d) $(2x^2+10x+8):(x+1) = \underline{\underline{2x+8}}$

$-2x^2-2x$

$8x+8$

$-8x-8$

e) $(x^3+2x-3):(x-1) = (x^3+0x^2+2x-3):(x-1) = \underline{\underline{x^2+x+3}}$

$-x^3+x^2$

x^2+2x

$-x^2+x$

$3x-3$

$-3x+3$

S.16 | 2 a) $f(x) = \frac{4}{2x+1}$ $\quad D_f = \mathbb{R}\setminus\{-0{,}5\}$

y = waagrechte Asymptote

$\lim\limits_{x\to\pm\infty} \frac{4}{2x+1} = \lim\limits_{x\to\pm\infty} \frac{\overbrace{4}^{\to 4}}{\underbrace{x}_{\to\infty}(2+\underbrace{\frac{1}{x}}_{\to 0})} \frac{4}{\pm\infty} = 0$

x = senkrechte Asymptote

$y=0$

$x=-0{,}5$

b) $f(x) = \frac{1x-1}{1x+1}$ $\quad D_f = \mathbb{R}\setminus\{-1\}$

$y=1$

$x=-1$