Übungsaufgaben GW von Funktionen 1

Aufgabe 1:

a.) $f(x) = \frac{2x}{2x+5}$ $\quad \lim\limits_{x \to \pm\infty} f(x) = \underline{\underline{1}}$

b.) $f(x) = \frac{4x}{x-3}$ $\quad \lim\limits_{x \to \pm\infty} f(x) = \underline{\underline{4}}$

c.) $f(x) = \frac{3x-4}{5x+7}$ $\quad \lim\limits_{x \to \pm\infty} f(x) = \underline{\underline{\frac{3}{5}}}$

d.) $f(x) = \frac{4-3x}{2x-4}$ $\quad \lim\limits_{x \to \pm\infty} f(x) = \underline{\underline{-\frac{3}{2}}}$

e) $f(x) = \frac{4x^2-3}{2x^2}$ $\quad \lim\limits_{x \to \pm\infty} f(x) = \underline{\underline{2}}$

f.) $f(x) = \frac{3x^2-2x}{2x^2-1}$ $\quad \lim\limits_{x \to \pm\infty} f(x) = \underline{\underline{\frac{3}{2}}}$

g.) $f(x) = \frac{6x^2+4}{2x+2} - 3x$

Hauptnenner bilden: $f(x) = \frac{6x^2+4-3x(2x+2)}{2x+2}$

$f(x) = \frac{4-6x}{2x+2}$ $\quad \lim\limits_{x \to \pm\infty} f(x) = \underline{\underline{-3}}$

h.) $f(x) = \frac{8-5x^2}{9-3x} - \frac{5}{3}x = \frac{8-5x^2}{3(3-x)} - \frac{5x}{3}$

Hauptnenner bilden: $f(x) = \frac{8-5x^2-5x(3-x)}{3(3-x)}$

$f(x) = \frac{8-15x}{9-3x}$ $\quad \lim\limits_{x \to \pm\infty} f(x) = \underline{\underline{5}}$