Ex 2.5.16

d) $$\lim_{x\to\infty} \frac{(3x+4)(x-1)}{(2x+7)(1-5x)} = \lim_{x\to\infty} \frac{3x^2 \ldots\ldots}{-10x^2 \ldots\ldots} = \lim_{x\to\infty} \frac{3\cancel{x^2}}{-10\cancel{x^2}} = -\frac{3}{10}$$

e) $$\lim_{x\to\infty} \frac{(x+1)^7(2x+3)^4}{(2x+1)^3(x-98)^8} = \lim_{x\to\infty} \frac{(x^7+\ldots+1)(16x^4+\ldots)}{(8x^3+\ldots)(x^8+\ldots\ldots)}$$

$$= \lim_{x\to\infty} \frac{\overset{2}{\cancel{16}}\cancel{x^{11}}}{\cancel{8}\cancel{x^{11}}} = 2$$

f) $\lim\limits_{x \to \infty} \left(\dfrac{2x^2-1}{x-1} + 1 - 2x \right)$

$$\left(= \lim_{x \to \infty} \left(\frac{2x^2-1}{x-1} \right) + \lim_{x \to \infty} (1-2x) \right.$$

$$= \lim_{x \to \infty} \frac{2x^{\cancel{2}}}{\cancel{x}} + 1 - \infty$$

$$\left. = \text{“}\infty - \infty\text{”} \quad \text{forme indéterminée} \right)$$

$$= \lim_{x \to \infty} \left(\frac{2x^2-1}{x-1} + \frac{(1-2x)(x-1)}{x-1} \right)$$

$$= \lim_{x \to \infty} \frac{\cancel{2x^2} - 1 + x - 1 \cancel{-2x^2} + 2x}{x-1} = \lim_{x \to \infty} \frac{3x-2}{x-1}$$

$$= \lim_{x \to \infty} \frac{3\cancel{x}}{\cancel{x}} = 3$$