**4.4** 1) Supposons que la fonction $f$ admette l'asymptote oblique $y = m\,x + h$.
Ainsi $f(x) = m\,x + h + \delta(x)$ avec $\lim\limits_{x\to\infty} \delta(x) = 0$.

(a) $\lim\limits_{x\to\infty} \dfrac{f(x)}{x} = \lim\limits_{x\to\infty} \dfrac{m\,x + h + \delta(x)}{x} = \lim\limits_{x\to\infty} \dfrac{m\,x}{x} + \dfrac{h}{x} + \dfrac{\delta(x)}{x} =$
$\lim\limits_{x\to\infty} m + \lim\limits_{x\to\infty} \dfrac{h}{x} + \lim\limits_{x\to\infty} \dfrac{\delta(x)}{x} = m + 0 + 0 = m$

(b) $\lim\limits_{x\to\infty} \big(f(x) - m\,x\big) = \lim\limits_{x\to\infty} \big(m\,x + h + \delta(x) - m\,x\big) = \lim\limits_{x\to\infty} h + \delta(x) =$
$\lim\limits_{x\to\infty} h + \lim\limits_{x\to\infty} \delta(x) = h + 0 = h$

2) Supposons que $\lim\limits_{x\to\infty} \dfrac{f(x)}{x} = m$ et que $\lim\limits_{x\to\infty} \big(f(x) - m\,x\big) = h$.
Alors $f(x) = m\,x + h + \underbrace{\big(f(x) - m\,x - h\big)}_{\delta(x)}$.

$\lim\limits_{x\to\infty} \delta(x) = \lim\limits_{x\to\infty} f(x) - m\,x - h = \lim\limits_{x\to\infty} \big(f(x) - m\,x\big) - h =$
$\lim\limits_{x\to\infty} \big(f(x) - m\,x\big) - \lim\limits_{x\to\infty} h = h - h = 0$