Ex 3)

$$\lim_{x \to +\infty} f(x) = \lim_{x \to +\infty} (-3x+2) + \lim_{x \to +\infty} \frac{1}{x} = -\infty + 0 = -\infty$$

$$\lim_{x \to +\infty} g(x) = \lim_{x \to +\infty} \left(-\frac{1}{4} x^2\right) = -\infty$$

$$\lim_{x \to -\infty} g(x) = \lim_{x \to -\infty} \left(-\frac{1}{4} x^2\right) = -\infty$$

$$\lim_{x \to +\infty} h(x) = \lim_{x \to +\infty} (-0,02 x^3) = -\infty$$

$$\lim_{x \to -\infty} h(x) = \lim_{x \to -\infty} (-0,02 x^3) = +\infty$$

$$\lim_{x \to +\infty} k(x) = \lim_{x \to +\infty} \frac{3x}{2x} = \frac{3}{2}$$

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

$$\lim_{x \to +\infty} C(x) = \lim_{x \to \pm\infty} \frac{x}{x^2} = \lim_{x \to +\infty} \frac{1}{x} = 0$$

$\underline{Ex 2}$

$\lim\limits_{x \to -\infty} f = 1 \implies y = 1 \to$ asymptote horizontale en $-\infty$

$\lim\limits_{x \to +\infty} f = 1 \implies y = 1 \to$ asymptote horiz. en $+\infty$

$\lim\limits_{\substack{x \to 3 \\ x > 3}} f = +\infty \implies x = 3 \to$ asymptote verticale

$\lim\limits_{\substack{x \to 3 \\ x < 3}} f = +\infty$

$\lim\limits_{x \to -\infty} g = 0 \implies y = 0$ asymptote horiz. en $-\infty$

$\lim\limits_{x \to +\infty} g = +\infty \implies y = x - 3 \to$ asymptote oblique en $+\infty$

$\lim\limits_{x \to 3} g = +\infty \to x = 3$ asymptote verticale.

$\underline{\text{Ex } 1}$

1. $\lim\limits_{x \to +\infty} (-3x^2) = -\infty$

2. $\lim\limits_{\substack{x \to 2 \\ x < 2}} \dfrac{x+3}{x^2-4} = \dfrac{2+3}{2^2-4} = \dfrac{5}{0} = -\infty$
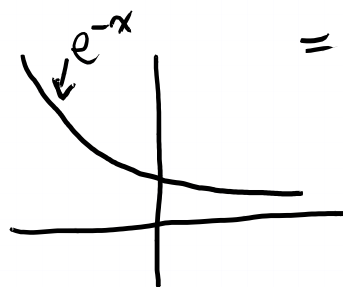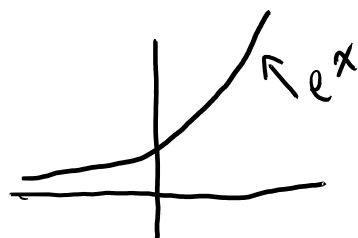
   Signe de x^2-4 :

3. $\lim\limits_{x \to -\infty} \dfrac{-5x^4}{x^4} = -5$

4. $\lim\limits_{\substack{x \to 0 \\ x > 0}} \left(\dfrac{x^2}{2} - x + 1 + \ln x \right) = -\infty$

5. $\lim\limits_{x \to +\infty} \left(\dfrac{\ln x}{x^2} + \dfrac{x^3}{e^x} \right) = 0 + 0 = 0$

6. $\lim\limits_{x \to -\infty} \left(e^x + e^{-x} + \sqrt{2-3x} \right) = 0 + \infty + \infty$

   $= +\infty$

1. a) -1 b) $-\infty$ c) $+\infty$ d) $+\infty$ e) $-\infty$

   f) $+\infty$

2. 4 asymptote.

   asymptote horizontale: $y = -1$

   " verticale: $x = -2$ et $x = 3$

   " oblique: $y = x - 5$