3h) $$\lim_{x\to+\infty} \underbrace{x}_{+\infty}\,\underbrace{\sin(1/x)}_{0} = \lim_{x\to+\infty}\frac{\overbrace{\sin(1/x)}^{\to 0}}{\underbrace{1/x}_{\to 0}} =$$

Reformulo per aplicar l'H

$$= \lim_{x\to+\infty}\frac{\cos(1/x)\cdot\frac{-1}{x^2}}{-1/x^2} = \lim_{x\to+\infty}\cos(1/x) = 1$$

l'H $0/0$

$$(1/x)' = -1/x^2$$

$$(\sin(1/x))' = \cos(1/x)\cdot -1/x^2$$

3i) $\lim\limits_{x\to-\infty} \underbrace{(x-2)}_{-\infty}\, \underbrace{e^{\overbrace{x-2}^{\to -\infty}}}_{0} = \lim\limits_{x\to-\infty} \dfrac{x-2}{\frac{1}{e^{x-2}}} =$

Reformulo per aplicar L'H

$$= \lim_{x\to-\infty} \frac{\overbrace{x-2}^{-\infty \leftarrow}}{\underbrace{e^{-(x-2)}}_{+\infty}} \underset{L'H\ \frac{-\infty}{\infty}}{=} \lim_{x\to-\infty} \frac{1}{\underbrace{-e^{-x+2}}_{-\infty}} = 0$$

$(x-2)' = 1$

$\left(e^{-(x-2)}\right)' = -e^{-(x-2)} = -e^{-x+2}$