

$$\lim_{x \rightarrow 0^+} \left(1 + \frac{3}{x}\right) e^{\frac{3}{x}} = +\infty$$

↙ ↘
+∞ +∞

$$\lim_{x \rightarrow 0^-} \left(1 + \frac{3}{x}\right) e^{\frac{3}{x}} =$$

↙ ↘
-∞ 0

$$= \lim_{x \rightarrow 0^-} \frac{1 + \frac{3}{x} \rightarrow -\infty}{e^{-\frac{3}{x}} \rightarrow +\infty}$$

L'Hospital

$$= \lim_{x \rightarrow 0^-} \frac{-\frac{3}{x^2}}{\frac{3}{x^2} e^{-\frac{3}{x}}} =$$

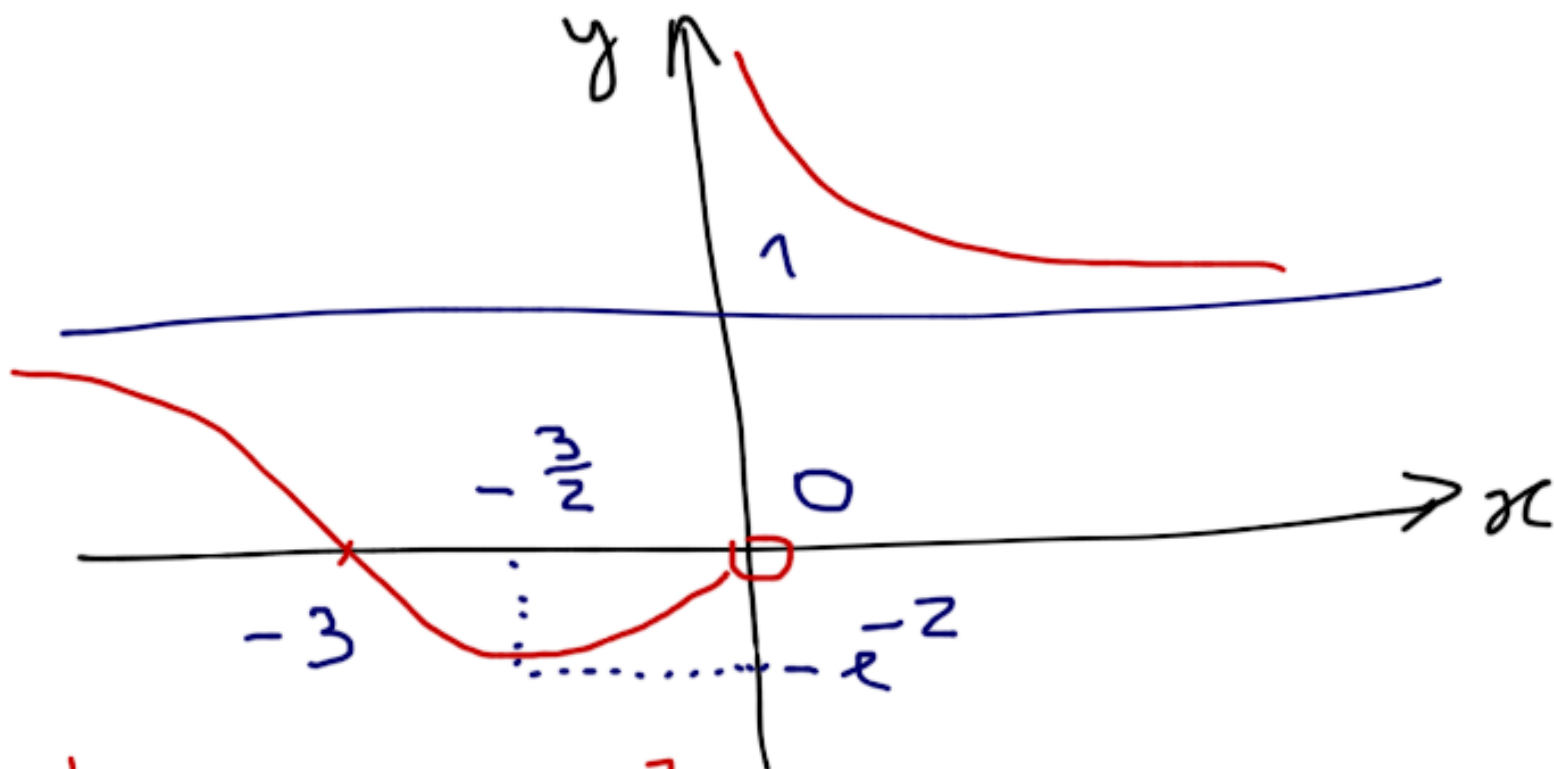
$$= -\lim_{x \rightarrow 0^-} e^{\frac{3}{x}} = 0$$

$$\lim_{x \rightarrow +\infty} \left(1 + \frac{3}{x}\right) e^{\frac{3}{x}} = 1$$

↗ ↘
0 1

$$\lim_{x \rightarrow -\infty} \left(1 + \frac{3}{x}\right) e^{\frac{3}{x}} = 1$$

↙ ↘
0 1



$k = 1$ ou $k < -e^{-2} \Rightarrow$ zero soluções

$k = -e^{-2}$ ou $(k \geq 0$ e $k \neq 1) \Rightarrow$ 1 solução

$-e^{-2} < k < 0 \Rightarrow$ 2 soluções