11. [8 points] Consider the function

$$f(x) = \begin{cases} 4 - x - x^{\frac{2}{3}} & \text{for} \quad -8 \le x \le 0 \\ \\ 5xe^{-0.5x} + 4 & \text{for} \quad x > 0. \end{cases}$$

and its derivative

$$f'(x) = \begin{cases} \dfrac{2 + 3x^{\frac{1}{3}}}{-3x^{\frac{1}{3}}} & \text{for} \quad -8 < x < 0 \\ \\ 5(1 - 0.5x)e^{-0.5x} & \text{for} \quad x > 0. \end{cases}$$

Find the x-coordinates of the global maximum and the global minimum of the function $f(x)$ for $x \ge -8$. If one of them does not exist, write NONE in the answer line below. Use calculus to find your answers, and be sure to show enough evidence that the point(s) you find are indeed global extrema.

Answer:

Global maximum(s) at $x =$ _____

Global minimum(s) at $x =$ _____