6. [7 points] Consider the family of functions given by

$$f(x) = \frac{ax}{e^{0.5(bx)^2}}$$

where a and b are constants with $a > 1$ and $b > 1$.
Note that the derivative and second derivative of $f(x)$ are

$$f'(x) = \frac{a(1 - b^2x^2)}{e^{0.5(bx)^2}} \qquad \text{and} \qquad f''(x) = \frac{ab^2x(b^2x^2 - 3)}{e^{0.5(bx)^2}}.$$

Find all global extrema of $f(x)$ on the interval $\left[\frac{1}{4b}, \infty\right)$. If there are none of a particular type, write NONE.
You must use calculus to find and justify your answers. Be sure to provide enough evidence to justify your answers fully.

Answer: global max(es) at $x =$ _____

Answer: global min(s) at $x =$ _____