

3. [12 points]

Suppose $h(x)$ is a continuous function defined for all real numbers x . The **derivative** and **second derivative** of $h(x)$ are given by

$$h'(x) = (x - 13)^2(x + 4)^{3/7} \quad \text{and} \quad h''(x) = \frac{17(x - 13)(x + 1)}{7(x + 4)^{4/7}}.$$

- a. [6 points] Find the x -coordinates of all local extrema of $h(x)$. If there are none of a particular type, write NONE. Use calculus to find and justify your answers, and be sure to show enough evidence to demonstrate that you have found all local extrema.

Answer: Local max(es) at $x =$ _____ Local min(s) at $x =$ _____

- b. [6 points] Find the x -coordinates of all inflection points of $h(x)$. If there are none, write NONE. Use calculus to find and justify your answers, and be sure to show enough evidence to demonstrate that you have found all inflection points.

Answer: Inflection Point(s) at $x =$ _____