2. [9 points] Suppose $q(t)$ is a continuous function defined for all real numbers t. The **derivative** and **second derivative** of $q(t)$ are given by

$$q'(t) = te^{t/2}|t-3| \quad \text{and} \quad q''(t) = \frac{e^{t/2}(t-3)(t-2)(t+3)}{2|t-3|}.$$

Throughout this problem, you must use calculus to find and justify your answers. Make sure you show enough evidence to justify your conclusions.

a. [5 points] Find the t-coordinates of all local minimum(s) and local maximum(s) of $q(t)$. If there are none of a particular type, write NONE.

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

b. [4 points] Find the t-coordinates of all inflection points of $q(t)$, or write NONE if there are none.

Answer: Inflection point(s) at $t = $ _____