

4. [14 points] Consider the family of functions

$$y = x^{2b} + ax^b$$

where a and b are nonzero constants.

- a. [4 points] Calculate y' .

- b. [4 points] Calculate y'' .

- c. [6 points] Find values of a and b so that the resulting function has an inflection point at $(x, y) = (1, -4)$. Justify that $(1, -4)$ is an inflection point of the function with the values of a and b that you found.