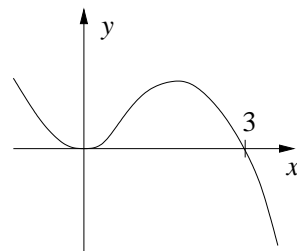


1. (2 points) Find an equation of a polynomial of minimal degree that could produce the graph to the right. Could you find any other equation that would produce the graph? Explain.



2. (3 points) Consider the function  $f(x)$  given by

$$f(x) = \begin{cases} x + 8, & x < a \\ 2x^2 + x, & x \geq a. \end{cases}$$

Find, if possible, a value for  $a$  that will make  $f(x)$  continuous on any interval on the real number line.

3. (3 points) Sketch a possible graph of your position,  $s(t)$  (relative to the fine dining establishment indicated below), as a function of time,  $t$ , if your position is described by the following scenario: “After finishing lunch at a fine dining establishment, you proceed at a brisk but steady pace in a straight line to your favorite class, calculus. Halfway there, you realize that you might be late, and pick up your pace so that by the time you get to class you are sprinting along at a great velocity.” Mark on your graph points or sections of the graph which illustrate the different parts of the scenario indicated.