MA205 - Integral Calculus
Homework Assignment 1
Due in class Friday, August 31, 2007

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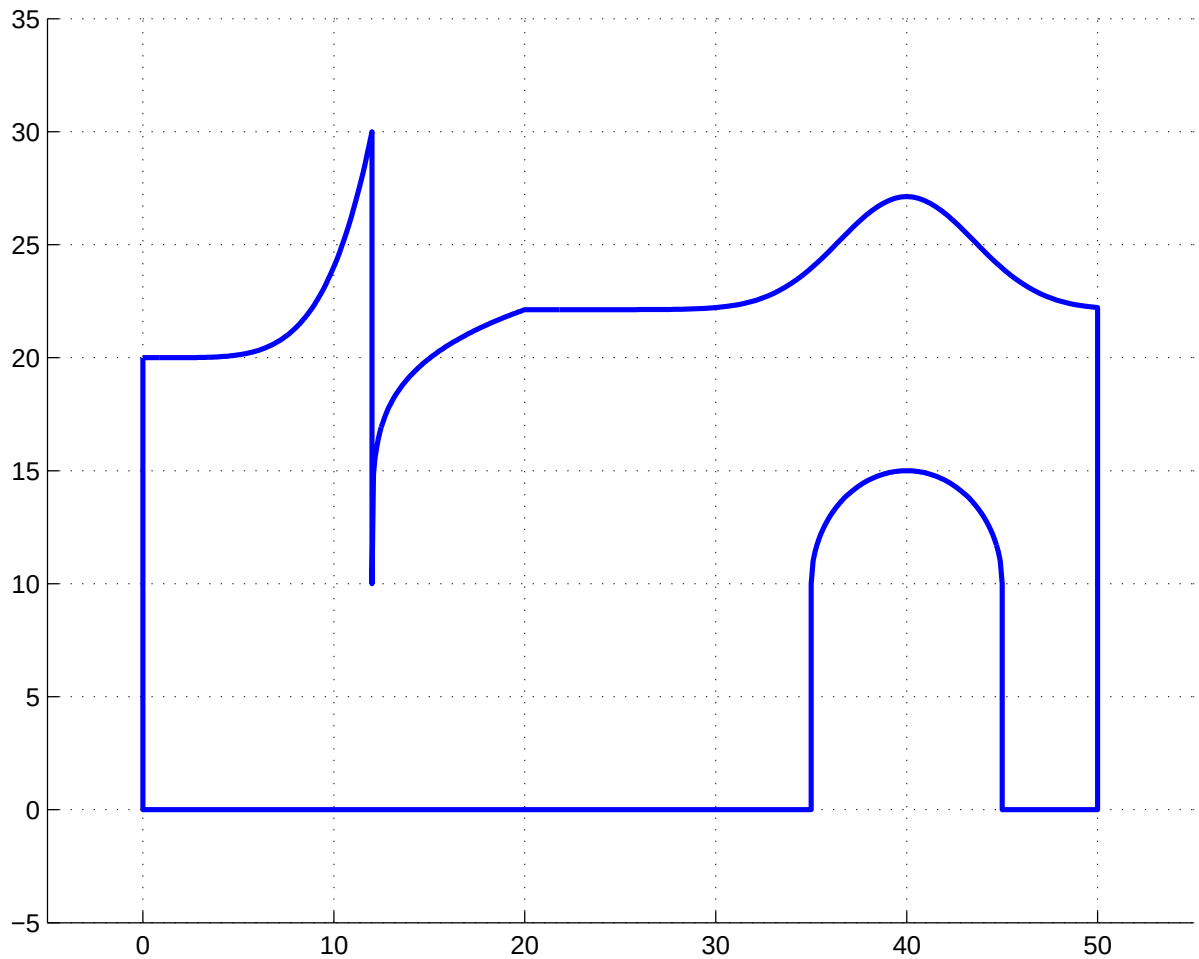
1. (11 points) After one month in your new job, your boss finally gives you the opportunity to impress him by overseeing a project. The Museum of French Architecture is in need of concrete for a wall that will serve as a divider in their outdoor garden display. They have asked that the wall be 50 feet long and 3 feet deep, with the shape as given in the picture below. (Note: all units in the picture below are assumed to be in feet.) You have a *one time opportunity* to go to your company's Board of Directors and ask for the money needed to complete the project. Assume that the cost of concrete is \$3.50 per cubic foot.

   Using the estimation tools we have discussed so far in MA205, derive an estimate for the amount of money you should request from the board. Briefly discuss the methods you used and why they are appropriate for this setting.

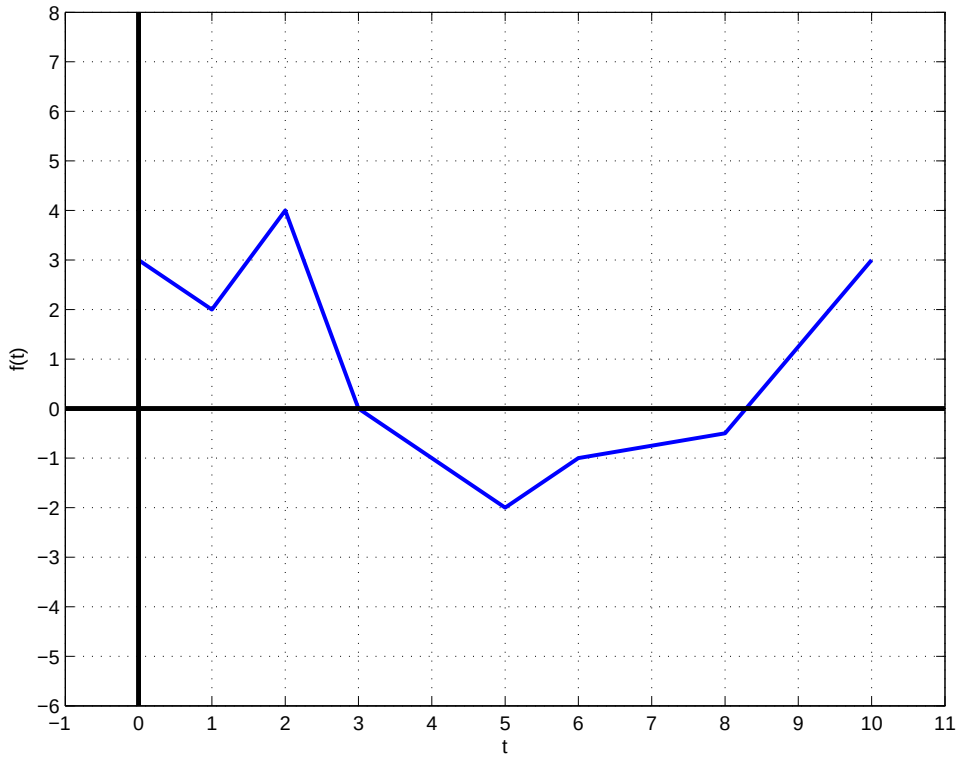
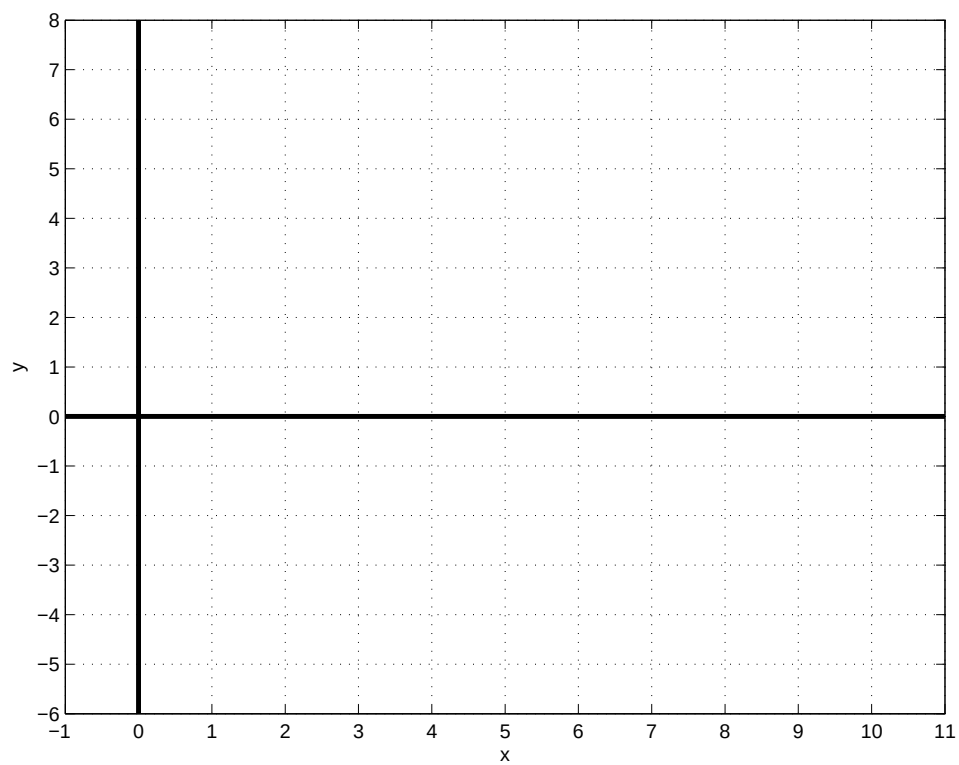


2. (8 points) Let $g(x) = \int_0^x f(t)dt$, where the graph of the function f is given below.

(a) For what x values is g increasing? How do you know?

(b) For what x values is g concave down? How do you know?

(c) Compute $g(0)$.

(d) Compute $g'(2)$.

(e) Sketch an accurate graph of $g(x)$ on the axes provided at the bottom of the page.