Math 120F
October 9, 1997
Quiz #2 (20 points)

Name _____

TA section (Circle one): FA FB FC FD

Instructions: You have 25 minutes for this quiz. You **MUST** show work for credit. If in doubt, ask for clarification.

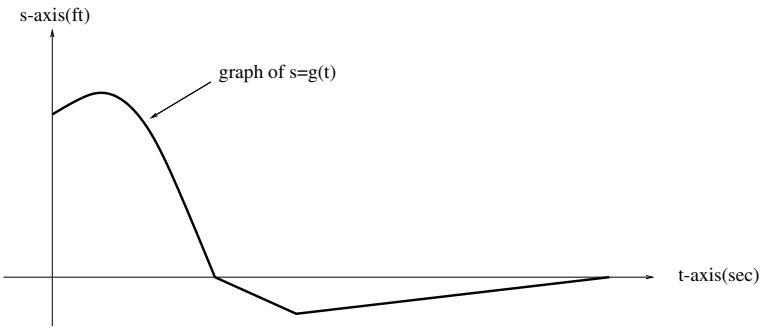
1. (2 points) Start with the function $s = f(t) = t^2 - t + 1$ with t allowed to be any non-negative real number.

   Calculate:

   (a) f(0)=

   (b) f(3t-1)=

2. (5 points) A swimmer jumps off a diving board into a pool. The function $s = g(t)$ keeps track of the height (in feet) of the divers head above water level at time t seconds. Here is the graph of $s = g(t)$.

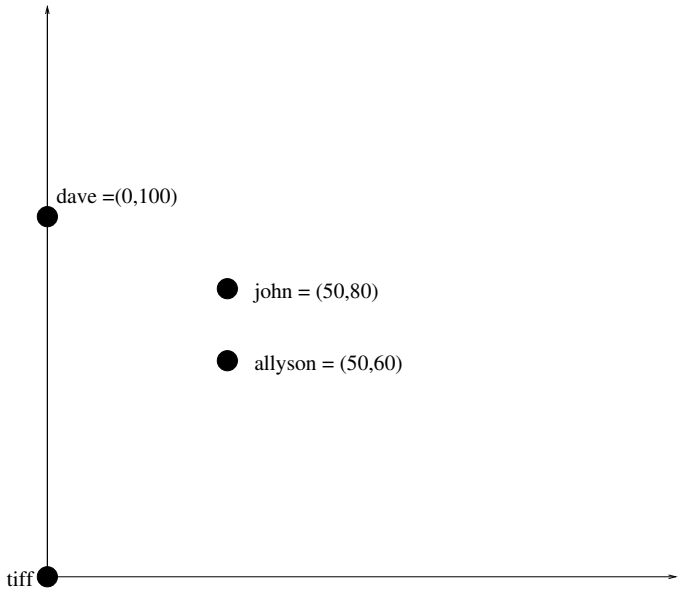


   (a) Indicate the portion(s) of the graph where the function is increasing.

   (b) Indicate the portion(s) of the graph where the function is decreasing.

   (c) True or False: During the time domain for this graph, the diver spends more time above water than below water. (Make sure to give a reason.)

3. (13 points) Dave, Tiff, Allyson and John are practicing soccer. The picture describes everyones location, assuming we impose coordinates with Tiff as the origin. Assume nobody moves. Dave kicks a ball directly toward Allyson and Tiff kicks a ball directly toward John.



(a) (4 points) Find a linear model for the path of each kicked ball. Sketch each ball path in the picture.

(b) (1 points) Are the two ball paths in (a) perpedicular?

(c) (2 points) Where do the two ball paths in (a) cross (i.e. find the coordinates)?

(d) (2 points) Assume Dave's kicked ball travels 50 ft/sec. When does the ball reach Allyson?

(e) (4 points) Assume Dave's kicked ball travels 50 ft/sec. At time $t = 1$ second, where is the ball located (i.e. find the coordinates).