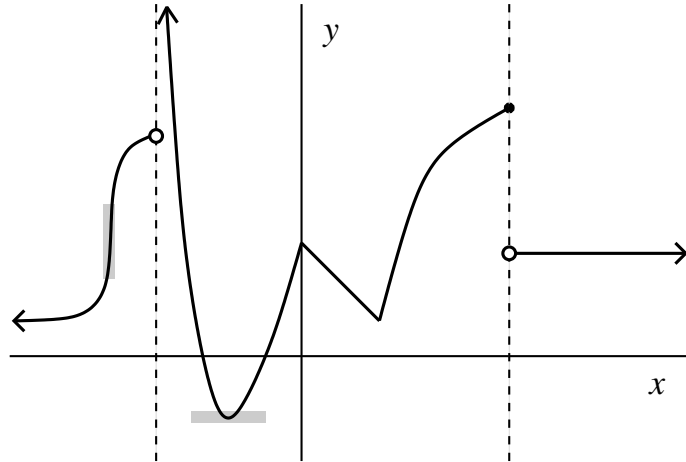1. Suppose $f(x) = Ax + \frac{B}{x^2}$ where A and B are constants. Find values of A and B so that $y = 2x + 1$ is tangent to $y = f(x)$ when $x = -1$. Graph the resulting $f(x)$ and the tangent line together when $-4 \le x \le 2$ and $-6 \le y \le 4$.

2. Below is a graph of $y = f(x)$. Label any points on the graph which occur in your discussion of the questions below.

a) Where is f not continuous? Why?

b) Where is f not differentiable? Why?

c) Sketch a graph of $y = f'(x)$ wherever f' is defined.

3. After a softball game, the winning pitcher throws the ball straight up in the air. The height s of the ball in feet is given by the formula $s = 5 + 48t - 16t^2$, where t is the time after release (measured in seconds).

a) The formula is valid only until the ball hits the ground. When does that happen?

b) Find the instantaneous velocity of the ball at the following instants: $t = 1$, $t = 2$ and $t = 3$.

c) When do you think that the ball reaches its highest point? Check your guess by computing the instantaneous velocity at that instant. How high does the ball get?

One problem will be selected for a writeup to be handed in at the next recitation meeting. Please see Professor Greenfield's Math 151 webpage to learn which problem to hand in.