Here is a list of some concepts for **Exam 1** which may be somewhat different from the problems in the homework. You should be sure that you understand each of these concept problems.

For Exam 1:

1. State the formal, limit definition of the derivative. Explain how each piece of the definition relates to a picture.

2. (a) Is $\frac{x^2-25}{x-5} = x + 5$? Explain your answer.

   (b) Is $\lim_{x \to 5} \frac{x^2-25}{x-5} = \lim_{x \to 5}(x + 5)$? Explain your answer.

3. When given a revenue function, $R(x)$, and a cost function $C(x)$, be able to find the profit function, $P(x)$. Be able to explain the meanings and implications of $P(10)$ and $P'(10)$.

4. Every morning at summer camp, the youngest boy scout raises the flag to the top of the flagpole. Below is a graph of the function that represents this process.

height
(in feet)

time (in seconds)
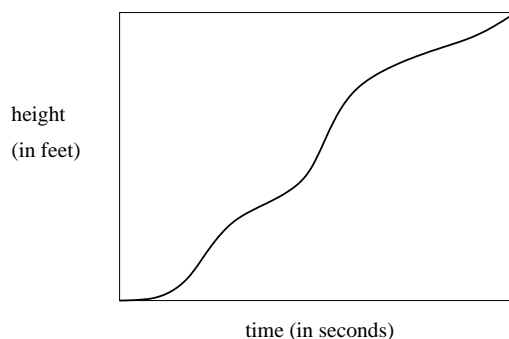
   (a) Mark a point on the graph where the flag is highest. Label this point with the letter A.

   (b) Mark a point on the graph where the derivative of the function is greatest. Label this point with the letter B.

   (c) Explain, *in terms of the flag*, why you put the point B where you did.