Lab 1: Last part

Recall that we have had two previous assignments to do for the first lab. The first was a list of LaTeXcommands to look up, the second was to typeset `MVT.tex` and to type in a sample lab document.

Lab 1 is all three parts- Our previous two assignments, together with today's introduction to Maple questions. Here is what to turn in (DUE: by 12:30PM on our next meeting day). Email me the following (it would be fine to attach them using Webmail, my email address is `hundledr@whitman.edu`):

- The latex file answering the questions for our first assignment (the .tex file ONLY).
- The latex file `MVT.tex`
- The Maple file that answers the questions on this sheet (ONLY turn in the answers to these questions, NOT the entire introduction). Remove all the Maple output before mailing: `Edit`⇒ `Remove Output`⇒ `From Worksheet`

Grading criteria: 8 points if LaTeXand Maple can be run without error, and 7 points for clarity, brevity and correct answers.

Today's Maple Lab

Work through the Introduction to Maple before answering the following questions. Try using Maple's help features before asking your instructor for assistance.

On a new Maple document (different than the one used for the Introduction), answer the following "typical" Calculus questions:

1. Let $f(x, y) = xe^{xy}$. Plot the graph of f, together with a plot of its tanget plane based at $x = 1, y = 1$.

   Maple commands you should use:

   - `exp` for f and `diff` for the partial derivatives
   - `subs` to evaluate the partial derivatives
   - `plot3d` to plot the two functions (use a reasonable window size).

2. Let $f(x) = e^{-(x-3)^2/6}$. Approximate: $\int_{-10}^{10} f(x)\,dx$

   HINT: What is the difference between `int` and `Int`?

3. Find the derivative of $f(x) = \frac{1}{x}$ by using Maple to step through the **definition** of the derivative:

   Hint: You might look at how to define a FUNCTION in Maple, then ask Maple to compute the difference quotient, then the limit.

   Once you have an answer for that function, copy and paste to do the same thing for $g(x) = \sqrt{x}$.