Math 126 Calculus I Derive Computing Lab 3 Block 3 Tinsley

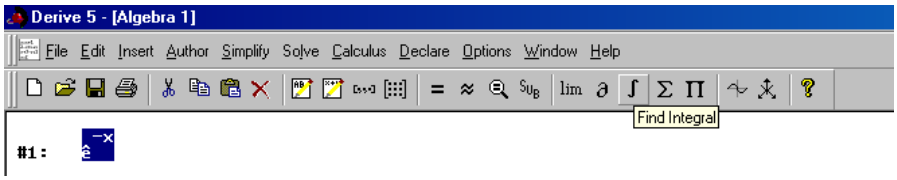
Instructions: Work in the same groups as you have been. The lab is due on Friday of Week 3 by 5:00 PM.

Note on Graphing*:** You may have noticed that some of the colors Derive uses do not show up well when projected or printed, particularly on a black and white laser printer. You can control which colors Derive uses. In the 2D plot window, click **Options|Display** and click the ***Color tab. First, uncheck '***Automatically change color of new plots***'; then, click the **Next Color** button. Now, you can select your choice of plot color.

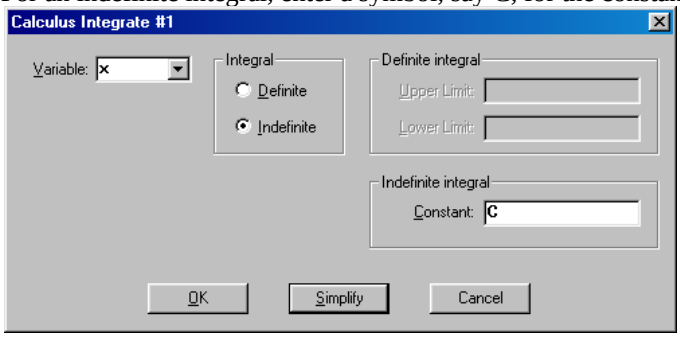
Notes on Display: Derive can distinguish between upper and lower case. It also allows variable names of longer than a single character. On the algebra page (i.e., where the expressions are stored) click **Options|Mode Settings…** and then on the ***Input*** tab. Check ***Word*** under ***Input Mode*** and ***Sensitive*** under ***Case Sensitivity.*** I would recommend against using case sensitivity unless it is important to your project. I use it primarily for demonstration purposes in class.

The real number e is obtained either by holding down the control key and pressing e (<Ctrl>e) or by clicking the e character among the characters down on the bottom right of the Derive screen.

***Integral Calculus*:** Derive is happy to calculate both indefinite and definite integrals for you. After highlighting your expression, just click the integral sign:



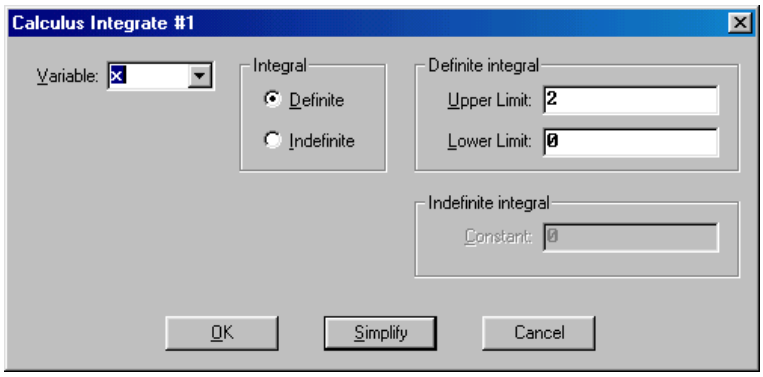
For an indefinite integral, enter a symbol, say C, for the constant and click Simplify:



You obtain two expressions: $\int (e^{-x}, x, C)$ and. $C - e^{-x}$

You also could have authored the expression directly INT(ê ^-x, x, c) .

The only difference for a definite integral is that you must enter the limits. The symbols ∞ and -∞ are allowed here though you probably will not need these until calculus 2. To find definite integral of $\hat{e}^{-x}$ from x = 0 to x = 2 enter the following data and click Simplify:



The result is

$$1 - \hat{e}^{-2}$$

Feel free to use Mathematica to check your homework answers. You will be allowed to use it or your calculator on the second half of the final exam.

Exercise 1: Please work in the same groups as assigned the first week.

Use Mathematica to do exercises 32, 52, 62, 74 from the CHAPTER REVIEW EXERCISES at the end of chapter 5 (p. 369-73). Show your work by embedding **nicely** expressions, integrals, graphs, etc in a word document. Be sure all names are on your document. We have the lab reserved from 2:00 – 3:00 PM on Thursday of Week 4.

New Instructions for turning in your labs: Please email me your labs. However, please include ALL members of your group as addressees along with me so that I can do a Reply All to return your corrected labs.