**TI-Nspire Notes for Calculus II**  
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**Settings:** Home – 5: Settings – 2: Settings – 1: General  
Usually for calculus, angle should be set to Radian, calculation mode to Auto, display digits should be at least 6. Select Make Default.

**ctrl:** Use to access blue commands above keys.  
**Touch pad:** Use to access pointer on screen.  
**Calculating in a Document:** Home – 1: New Document – 1: Add Calculator – Enter

Use ctrl-clear to delete current line.  
Use Menu – 1: Actions – 5: Clear History to clear all lines.  
ctrl-X, ctrl-C, and ctrl-V may be used to cut, copy, and paste, respectively.  
Use the math button to the right of the 9 key to access limits, derivatives, integrals, and sums.  
Use the trig button to the left of the 7 key to access trigonometric functions.  
Use the π ► button to the left of the H key to access π and ∞.  
Use ctrl-enter to obtain numerical approximations instead of exact answers.

**Graphs in a Document:**  
To add a graph to the document you are in, use the doc key below the Home button, 4: Insert – 4: Graphs.  
Enter the expression to be graphed on the entry line at the bottom of the screen.  
If entry line is not visible, open it by clicking on the double right arrow with the pointer.  
You can also open the entry line using menu – 2: View – 7: Show Entry Line.  
To clear all graphs, select menu – 1: Actions – 5: Delete All.  
You can delete selected graphs using the double up or down arrows and ctrl – clear.  
To change the view window, select menu – 4: Window/Zoom – 1: Window Settings.

**Toggling between Calculator and Graph:** Use ctrl ► or ctrl ◀.

**Toggling between Graph View and Graph plus Table View:** Use ctrl – T (note, you must first click with the pointer on the graph side, when removing the table view).

**Solving equations:** Use the command solve (typed), enter the equation, and specify the variable to be solved for. See also graph intersections, below.  
**Example:** solve(sin(x)=0,x)  
**Note:** The answer x=n1π means that x is an integer multiple of π.  
**Example:** To find the solution of \( \sin(x) = 1/2 \) in the interval \( (\pi/2, \pi) \) type:  
solve(sin(x)=1/2,x|x>\pi/2 and x<\pi)  
The symbols |, <, and > may be found by typing ctrl = .

**Naming a function or variable:** Use sto→ (in blue above the var key above the 9 key).  
**Example:** To create a function \( f \) such that \( f(x) = x^2 \):  
x^2 sto→f(x)  
To delete the function \( f \), use menu – 1: Actions – 3: Delete Variable \( f \)  
You can also use menu – 1: Actions – 4: Clear a – z to delete all one-letter variables and functions.

**Common errors:**  
- Don’t confuse the negative sign (-) with the subtraction symbol -.  
- The letter e should not be used for the exponential function. Use the \( e^x \) key two buttons left of the 1 key.  
- Don’t forget to use ctrl ► after a superscript or subscript to return to the normal level before typing the next symbol.
Chapter 6
Finding Area Between Two Graphs
To find the area enclosed by the graphs of \( y = f_1(x) \) and \( y = f_2(x) \) between two intersection points, first solve for the intersection points using the solve command, or graph the two functions and use the graph menus, as described below. The function names used in the graph page may be used in setting up the integral for area.

Graph Intersections
In the graph view, use Menu – 6: Analyze Graph – 4: Intersection. Use the pointer to choose a lower and upper bound enclosing one intersection point at a time.

Chapter 7
Solving Systems of Equations
Example: solve(\( x + y = 3 \) and \( x - y = 1 \), \{x, y\})
Answer: \( x = 2 \) and \( y = 1 \)

Finding Partial Fraction Decompositions
Example (p. 489 Example 5): \( \text{expand}((2x^2 - x + 4)/(x^3 + 4x), x) \)
Answer: \( \frac{x}{x^2+4} - \frac{1}{x^2+4} + \frac{1}{x} \)

Chapter 9
Graphing a Direction Field
In graph view choose Menu – 3: Graph Type – 6: Diff Eq. The command line will start \( y1' = \). Enter an expression in \( x \) and \( y1 \) (not \( y \)). To adjust the resolution of the graph, click on the … on the bottom right, and change the number for Field Resolution. (You may need to open the bottom menu first by clicking the double arrows on the bottom left.)

Graphing a Solution through an Initial Point
Enter the initial point \((x_0, y1_0)\). To change the graph to a solid line, click Menu – 1: Actions – 4: Attributes. Move the pointer to the graph and click on it. Two squares will appear. Select the lower square, then right click ► until the notation “2/2 Points connected” appears. Now four squares are visible. Select the top square and use the right arrow ► to adjust the thickness of the line. Press esc to remove the menu.

Finding the Solution of a Differential Equation
In calculator view, use the desolve command. For example, to solve \( y' = y \), where \( y \) is a function of \( x \), type: \( \text{desolve}(y' = y, x, y) \) (the ‘ may be found in the \( \alpha \beta \) menu, above the second key to the right of the 9 key). In the answer, \( y = c1e^x \), the variable \( c1 \) is a constant.
To solve the differential equation \( y' = y \) with initial condition \( y(0) = 3 \), type: \( \text{desolve}(y' = y \text{ and } y(0) = 3, x, y) \)
The answer will be \( y = 3e^x \).

Chapter 10
Graphing in Polar Coordinates
In graph view, choose Menu – 3: Graph Type – 3: Polar. The letter \( \theta \) may be found using the \( \pi \) ► button to the left of the \( \text{H} \) key.

Chapter 11
Taylor Polynomials
Example: To find the 3rd degree Taylor polynomial of \( f(x) = e^x \) at 0 type: \( \text{taylor}(e^x, x, 3) \)
To find the 3rd degree Taylor polynomial of \( f(x) = e^x \) at 2 type: \( \text{taylor}(e^x, x, 3, 2) \)

Chapter 12
Cross Product and Magnitude of Vectors
Example: To find \( (1,2,3) \times (1,0,-1) \), type: \( \text{crossp}([1,2,3],[1,0,-1]) \) (the answer will be \([-2,4,-2]\)).
Example: To find the magnitude \( |(-2,4,-2)| \), type: \( \text{norm}([-2,4,-2]) \) (the answer will be \( 2\sqrt{6} \)).

Graphs in Three Dimensions
In a graph page of a document, choose Menu – 2: View – 3: 3D Graphing