

Graphing Calculators Don't Just Graph

TI-83 Graphing Calculator Workshop

MAT 101 – Math Functions



Workshop Topics:

1. What to Know Before Turning the Machine On
2. Operations and Routine Functions
3. Working with Menus
4. Problem Areas
5. Some Basic Examples
6. Fractions, Decimals and Scientific Notation
7. Storing Values
8. More Problem Areas (Graphing)
9. Useful Graphing Screens and Settings
10. Basic Graphing Topics
11. Advanced Graphing Features
12. Advanced Algebra Topics
13. Solving Systems of Equations and Inequalities
14. Trigonometry on the Graphing Calculator

1. What to Know Before Turning the Machine On

- Recording your ID info into the graphing calculator
 - Name and phone number on back cover
 - Program ID into greeting and a “fake” program

```
Program: Name  
:ClrHome  
:Output (4down,2right,"Name")
```

```
Program: MathTutor  
:Output (3,4,"This TI-83")  
:Output (4,4,"belongs to:")  
:Output (5,2,"Name")  
:Output (6,2,"Phone")
```

- Calculator memory
 - Auto shut-off feature (approx. 4 minutes)
 - Calculator will preserve screen and memory for later use
 - Dim screen indicates:
 - Contrast setting needs adjustment
 - Display of contrast setting will be in top right-hand corner
 - Low battery
 - Indicated by needing a contrast of 9 or 10
 - How to replace batteries
 - Removing both batteries concurrently will erase all memory
- Tips on taking notes
 - It is difficult to watch, listen, take down notes, and follow keystrokes/menus

2. Operations and Routine Functions

- TI-83 layout
 - Number parts in gray
 - Operations in blue
 - Management keys in black
 - Second functions in yellow
 - Alpha functions in green
 - Graphing functions on top row

- Using function keys
 - Exponents struck after expression (they work on what they touch)

 - Log, ln, roots, and trig keys are pressed before the numbers they act upon

 - Coma, parentheses, arrows pressed as needed

 - Clear vs. delete
 - Clear erases entire screen

 - Delete erases only hi-lighted item

 - Inserting values

 - Catalog
 - Displays all calculator commands
 - Can paste into current location
3. Working with Menus
- “quit and go home”

 - menus:
 - home/calculating screen

 - mode

 - math

 - stat

 - vars

 - prgm

 - (see #9 for graphing menus)

4. Problem Areas

- “junk-in, gospel-out”
- Opposite vs. subtract keys
- Must eliminate double-signs
- Rules for order of operations
- Invisible sets of parentheses
- More than one way to do everything

5. Some Basic Examples

6. Fractions, Decimals and Scientific Notation

- Answer as a fraction or decimal
- Answer in scientific notation

7. Storing Values

- Caution: once a value is entered for a variable on the home screen , it will remember that value in future calculations!

8. More Problem Areas (Graphing)

- Recall common errors from #4
- Must solve for the dependent variable (i.e. “y”) in order to graph your function
- Calculator will only graph functions
- Warped image

9. Useful Graphing Screens and Settings

- Equation editor
 - differentiating lines
 - shading or drawing functions
 - saving formulas
- Cartesian plane
 - Can alter manually with window menu
 - Can have calculator alter with zoom menu
- Table of values
 - Can view with Cartesian plane (in mode menu, select G-T)
- Calc menu

10. Basic Graphing Topics

- Graphing functions
- Tracing (within one +/- .10)

- Zooming features
 - In and out
 - Standard (+/- 10)
 - Square
 - Box
 - Fit
 - Trig and stat
- Finding x- and y-intercepts

- Evaluating a function at a point

- Relative min/max

- Intersection of two functions

11. Advanced Graphing Features

12. Advanced Algebra Topics

13. Solving Systems of Equations and Inequalities

14. Trigonometry on the Graphing Calculator