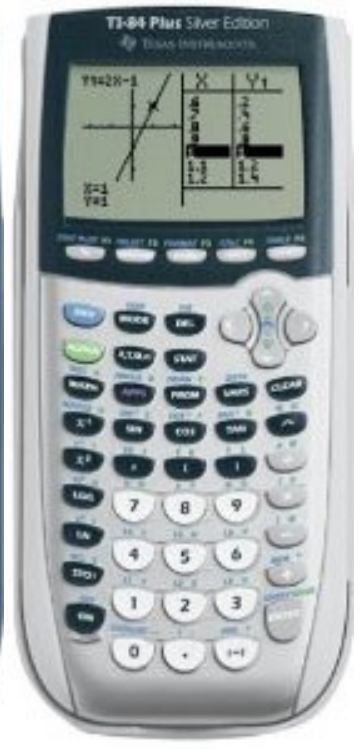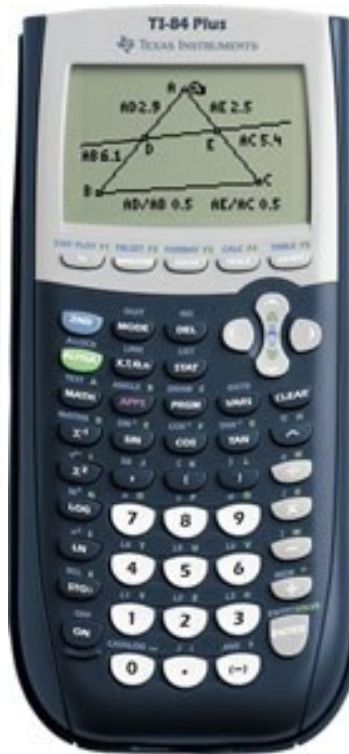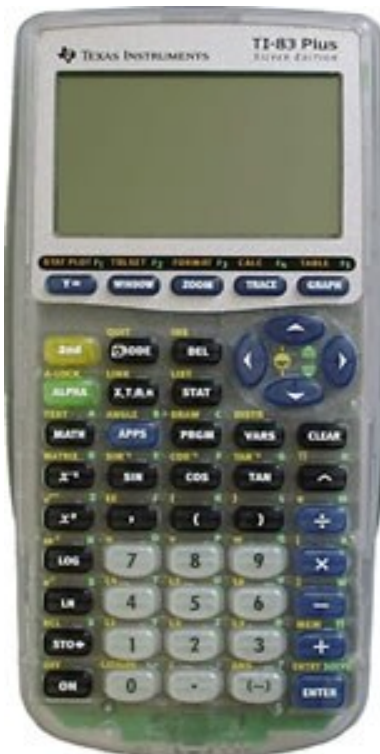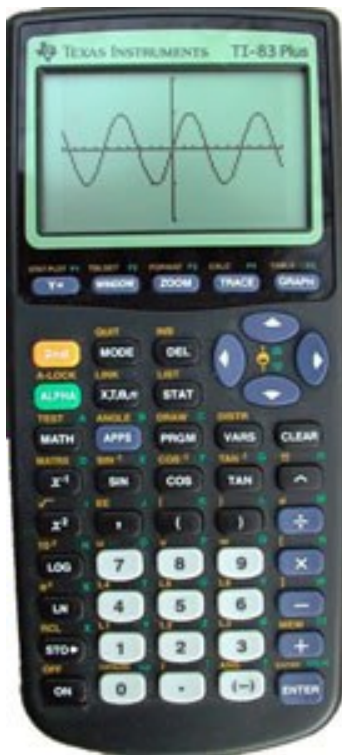# Calc-Tech™

The SAT Operating System™
Version 1.00

Designed for TI-83+, TI-83+ Silver, TI-84+, and TI-84+ Silver Edition Graphing Calculators

Calc-Tech™

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Table of Contents

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Introduction

The SAT Operating System

The SAT Operating System (SAT_OS) is a software package designed for Texas Instruments graphing calculators. This manual is intended for use with the TI-83+ version of SAT_OS. The TI-89 version was originally developed in time for the March 12, 2005 "New" SAT test, which now covers mathematics material from three years of high school (see the Wikipedia article here). Due to the difficulty, the types of problems involved, and the large number of equations that might potentially be needed during the test, a calculator-based solution to help students improve their scores on the "New" SAT test was developed. The software is unique since it incorporates all of the equations and tools one might need for use *during* the actual test. Use of the software, based on current feedback from over 16,000 beta version users from ticalc.org, typically results in a 10-20% improvement in scores (often over 60 points). The SAT Operating System helps students improve the accuracy of calculations and reduces the time used while making those calculations.

To achieve success on the SAT I Reasoning Math subsection, one must complete problems accurately and quickly. Even students who have memorized all the equations needed during the SAT will find SAT_OS useful since the rate at which any calculation made during the test is significantly increased. Users will also have peace of mind knowing that the calculations made with the software are accurate and complete. The software is based on tested, proven, logical algorithms that quickly produce answers. This allows students to move on to the next question without spending much time per problem. The key to the success of students who use the SAT Operating System is simple: as long as you know and understand how to approach a problem, the software handles all the calculations.

The functions and features of the SAT Operating System are accessible to the user in an easy-to-use, Graphical User Interface (GUI). By combining one's mathematical and logical reasoning skills with the power and capability of the SAT Operating System, our users will be able to achieve higher scores!

How to use this manual

We tried to design this manual to be as easy to use as possible. This manual was created as a searchable document. If at anytime you would like to find specific information quickly, just use the search box at the top of your PDF reader to find exactly what you are look for.

Please begin by reading the "Getting Started" section to learn how to install and navigate the software. Also included with your copy of the SAT Operating System is a video tutorial on how to complete the installation of the software on your TI-83+ or TI-84+ graphing calculator.

If you need to consult the official TI-83+ manual for additional help on how to use some of the functions on your calculator, you may download it here. The TI-84+ manual is here.

1 Getting Started

Requirements

To install and successfully run the SAT Operating System on your TI-83+/84+ graphing calculator, you must have at least 16384 B (16.4 Kbytes) of free Flash ROM memory on your device for the application. To check how much free memory you have on your device, press the "2nd" key on the upper left side of your calculator keypad and then press the "+" key. To remember this, notice there is a three letter phrase above the number 6 titled "MEM" for "memory." In the menu that appears, there is an item titled "Mem Mgmt/Del…" If you select this option, there will be some information at the top of your screen. The first number is how much RAM you have and the second number is archive memory. All archived items consume Flash ROM memory and all other items such as expressions, text, and other variables consume temporary RAM memory.

- The application will be saved to archive memory.
- Be sure to not store any other programs or applications on your calculator other than the SAT Operating System. If you do, you might have memory problems. The less memory consumed by other software programs, the less likely it is you will experience memory problems and the application will run quicker, more efficiently, and ultimately be more effective during the SAT test.
- Storing the programs in archive memory means you will not lose the SAT Operating System when you lose your power source, such as when the batteries die and/or you need to change the batteries for any reason. This will also prevent you from accidentally deleting the programs as well since the TI Operating System always asks you for confirmation before deleting archived variables and programs.

Unlike the TI-89 version of the SAT Operating System, the TI-83+ version can be sent to your calculator in one operation since there is only a single file to send.

Application (16384 bytes or 16.4 KB of space needed)

SATOS.8xk   5/2/2011 9:46 PM   TIConnect Application

Additional Components:

There are no additional components to install. There is only one application to install:

SATOS.8xk   5/2/2011 9:46 PM   TIConnect Application

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Installing the software

The following instructions summarize all of the steps taken in the video installation guide that is included with your copy of the SAT Operating System. If you have problems playing the video, please check to make sure your media player is compatible with the Windows Media Video (*.wmv) file format. If at anytime you are confused about what you see here, please watch the installation video. If you are still having trouble, please contact Calc-Tech™ via email at support@calc-tech.com for free technical support. If you need more immediate assistance, you may call our Premium Technical Support center at +1 (814) 806-2688 after purchasing a premium support PIN number through website (http://www.calc-tech.com).

Installation (for Windows users):

1. After you have successfully extracted the contents of the **zip archive (*.zip)** to the folder of your choice, you should see the following subfolders:
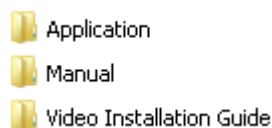
2. Before we can do anything with the application in the "Application" folder, we need to install the TI-Connect software so that communication between your calculator and your computer is possible.

- TI-Connect by Texas Instruments Incorporated—Use the drop-down menu under "Download TI Connect" to select either the Mac or Windows version.
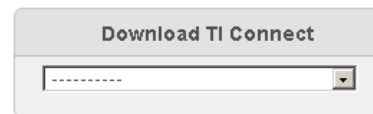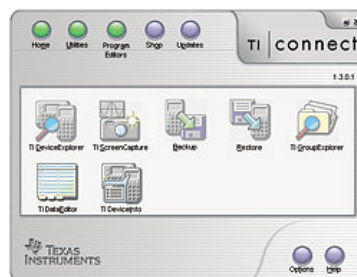

Follow the TI-Connect installation instructions to properly install the software on your computer.

3. When you are finished, you should now have the "Send to TI device…" context menu item (for Windows users). If not, you will need to restart your computer in order for the changes to take effect. Connect your calculator to your computer using a USB to miniUSB cable (which should have been included in the TI-83+ or TI-84+ retail package). In Windows Explorer, go to the Application folder and right click the application to activate the context menu and click on "Send to TI Device…"

When you click on "Send to TI Device…" the following dialog box may appear:

4. The following window will appear:
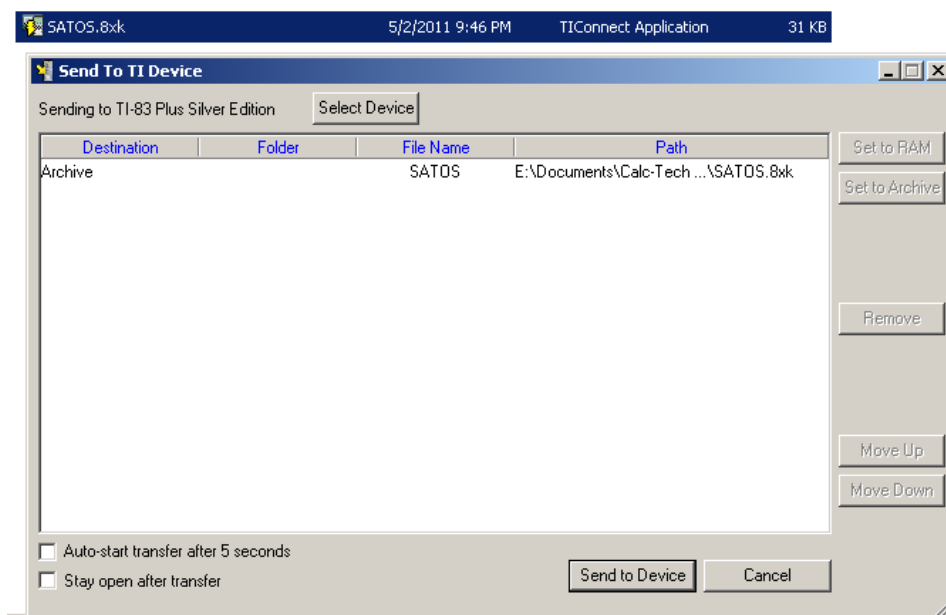
5. Click   "Send to Device" when you are ready. There will be a pause while the software detects your calculator and begins to send the programs to your calculator. Wait until the transfer is complete.

Congratulations!

You have now successfully installed the SAT Operating System on your graphing calculator. If you ran into trouble, consult the Video Installation Guide first and then contact us if you are still having trouble.

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Quick Start Guide

First things first. This is a **quick-start guide** on how to run the software. If you learn how to do this procedure quickly, you can (quite literally) start the software in less than 3 seconds!
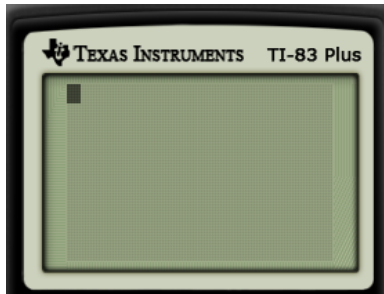
1. Start at the home screen

2. Press the blue "APPS" button

3. Highlight "SATOS"

4. Press "ENTER" and you should see the screen above

5. That's it! Now you're ready to ace the SAT test!

Navigation

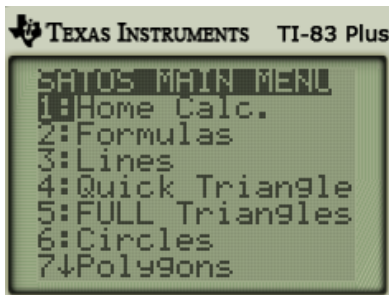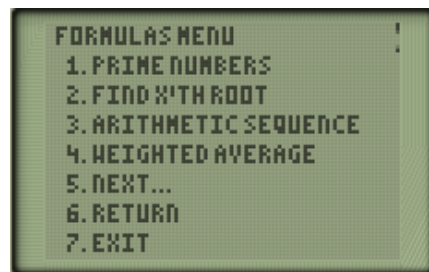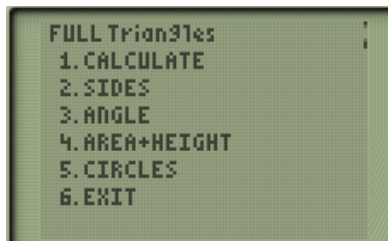There are several methods of navigating the software quickly and efficiently so that you can make calculations as fast as possible during the SAT test. First, let's take a look at one of the components of the SAT Operating System to get a feel for what it's like to use the software:

FULL Triangles - Main menu.
From here, you can select which values you would like to assign values.
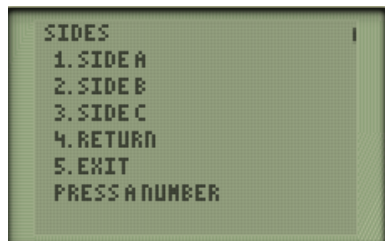
FULL Triangles - Sides.
Simply select one of the sides to enter a value for that side.
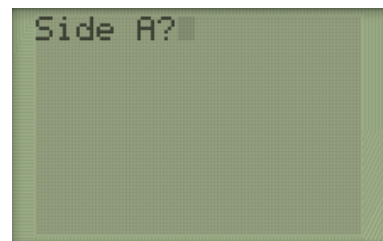
FULL Triangles - Side A.
This is a typical screen where you will enter data. Type a value and hit "ENTER."

Within each menu, you can simply press the number that corresponds to that menu item to navigate. At the main app screen:
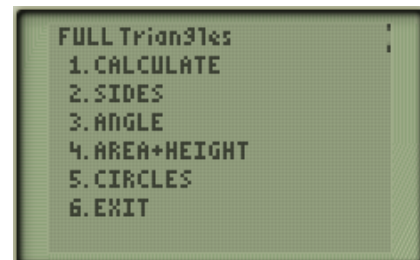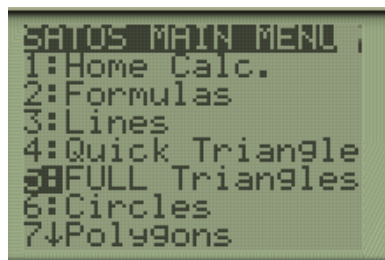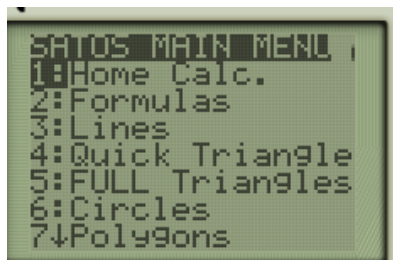
You should use the arrow keys to navigate the menu. Once you have highlighted the desired menu item, press the "ENTER" key. Of course, you can just press the number that corresponds with that menu item, but there is a small known bug that causes the app to register to instances of that key press instead of just one. That means that whenever a key is pressed to select a menu item, the menu item with the same number in the next menu will automatically be triggered. However, you can also immediately return to the previous (skipped) menu by using the "RETURN" or "BACK" options that frequently appear in program menus throughout the operating system.

For **application submenus:**

Press the number key that corresponds to the menu item to select that option.

For the **main menu:**

Use arrow keys to select the function you want to use.

If you press the number key that corresponds to that item, it will register the selection twice. That means if I were to press 4, I would see the "Quick Triangle" menu for a moment

Then I would also see the secondary menu that corresponds with the "next" menu item (option 4 within the "Quick Triangle" menu):

Saving Time

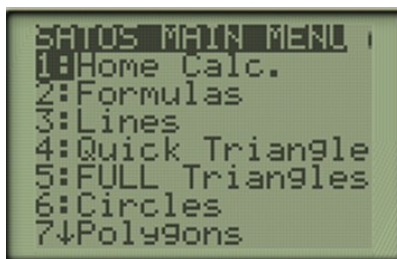There are several time saving navigation features of the SAT Operating System which will help you quickly calculate values and get the answers you need. You should become familiar with these features and comfortable using the component programs of the SAT Operating System before actually using it on the SAT test (see the section "How SAT_OS should be used").

- "RETURN" - Most component programs have a "Return" menu item. This will return you to the previous menu.
- "EXIT" - This will exit to the main menu of the SAT Operating System. This menu item is available in most components.
- "MODE" - After making a calculation within some of the component programs, hitting the "Mode" key will return you to the menu of program you are currently using. Not available in all programs.
- "CLEAR" - After making a calculation within the "FULL Triangles" feature, the "Clear" key will save the values you entered for any variables and return you to the program's menu.
- "ON" - In every feature, hitting the "ON" key will cause a "Break" error to occur. This is NOT an error; you are simply interrupting the normal program flow. This is VERY useful if you want to exit the SAT Operating System immediately to perform calculations at the TI Home screen.

Making Calculations

There are two different types of programs that allow you to make calculations using the SAT Operating System: "**menu-based input**" and "**standard input**."

Type 1 (**Menu-based Input**). The first program type you will encounter in SAT_OS is that of menu-based input. These component programs allow you to enter values for specific variables by navigating the drop down menus and selecting the desired variable for which you need to submit values or to designate as the unknown value. The procedure is outlined below:
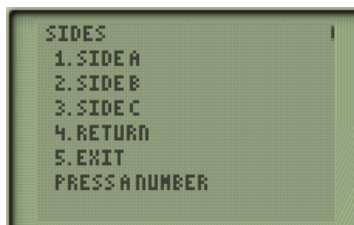
Step 1. Press the number key that corresponds to the variable you would like to save a value to (in this case it's "side A").
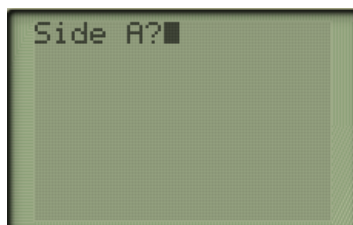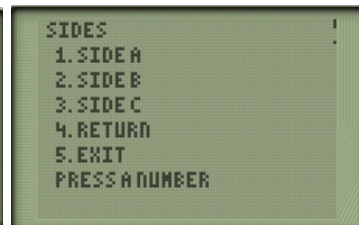
Step 2. A prompt for the variable will appear after you press "1." You can save any numerical value (integer, real number, whole number, decimal, fraction, etc.) to this variable.

Step 3. In this example, we use the integer "1." So hit the "1" key and then press "ENTER" to submit this value for the variable "Side A."

Step 4. Once you have submitted a value for the variable, you will be returned to the program menu where you may enter values for other variables.

Step 5. Enter a value of sq.rt (3) for "side B." When you have finished saving values, return to the first menu by pressing the "RETURN" option.
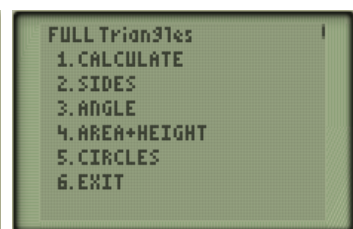
Step 6. You can calculate a numerical value for all unknown variables simultaneously by pressing the "1" key ("Calculate"). The application then uses all of the information you submitted to calculate all values that can be determined based on the information you provided. The more values you submit, the more information can be determined.
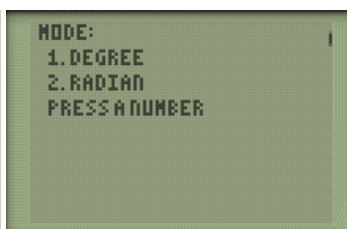
Step 7. You can choose to perform your calculations in Degree or Radian mode.
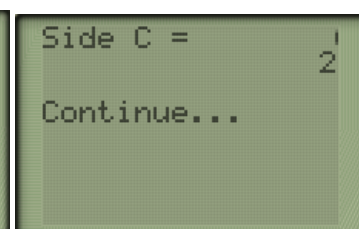
Step 8. The application will automatically calculate any and all values that can be calculated from the information you provided. Once the first round of calculations have been made, you can save the calculated values to the appropriate variables and try calculating new values. That way you will have as much information as possible to help you solve the problem.

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The number of steps involved in entering data will at first seem time consuming, but with practice, entering values becomes almost second nature and your speed will improve over time (see "How SAT_OS should be used").

As mentioned in step 8, one of the features of these types of programs is that you can run the program multiple times until all unknowns are found. This is useful if the problem you are working on involves multiple parts or calculations. For example, if you used the FULL Triangles feature once and found a value for "side C," you could then run the program again using the value you just found for side "C" to find additional values. You do not have to reenter the same values for the other variables you already defined. Simply enter the new value for "side C" and solve for another variable by pressing "1" for "CALCULATE." This version of the SAT Operating System is special since it solves for any and all values that can possibly be determined based on your input. For example, if I enter in values for sides A, B, and C, in the FULL Triangles feature, then I will get values for Angles D and E automatically without the need to designate either one of them as the variable. This is helpful if you are trying to learn as much as you can about the triangle in the problem you are working on.

Type 2 (*Standard Input*). The second program type you will encounter in SAT_OS is that of standard input request. These component programs prompt you to enter values for specific variables sequentially. The procedure is outlined below, using the "Distance" function in the "Lines" function (main menu item #3, lines menu item #1):
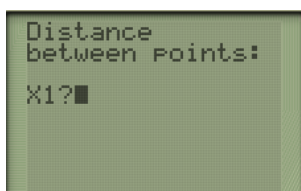
Step 1. You will be prompted for the first variable. Enter a value. In this specific function, variables are not used. Thus, you will need a value for each variable. Hit "ENTER" for each one.
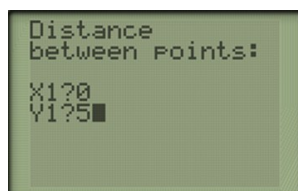
Step 2. Enter a value for the second variable. A prompt will appear for the next variable. Again, hit "ENTER" after you type each value or variable.
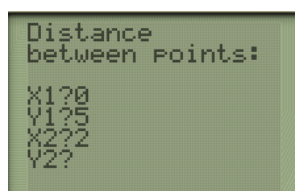
Step 3. Continue to enter values or variables.
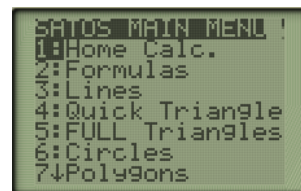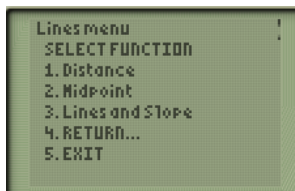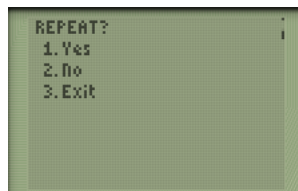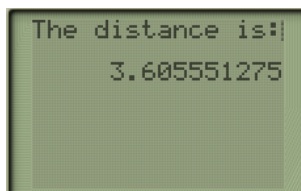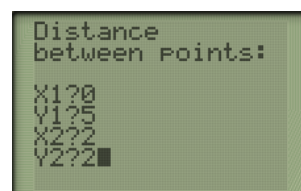
The answer will then be generated. You will then be given the option to "repeat" the operation or return to the main menu.

That's all there is to it! You now know how to enter data and calculate values using the component programs of the SAT Operating System. Now the only thing left to do is to become familiar with all of the components and their properties and learn how to apply their capability to solving problems during the SAT test.

How SAT_OS should be used

Introduction

The SAT Operating System was launched four years ago in time for the "New" SAT test (March 12, 2005). Over this period of time, we have received many questions and comments from users related to how one should use the SAT Operating System. There are in fact many ways the software can be used to help you improve your score. But, the best way to ensure your success on the SAT I Reasoning math subsection is to work practice problems *and use the SAT Operating System when you practice*.

How to improve your score by using the SAT Operating System

The number one question on every user's mind is: "how can I use this thing to improve my score?" To answer this question, you first must understand that the software was never designed to be substitute for logical reasoning or knowledge of mathematics. In other words, it was never intended to be used as a "crutch." This is not to mean that many users who are not as comfortable with mathematics will not find SAT_OS be useful. Quite the contrary, the SAT Operating System does in fact have all of the equations and tools built-in for you with an easy-to-use interface that simplifies and accelerates computations during the test. But, there is no substitute for mathematical skill or dedicated practice in preparing to take the SAT test. The short answer is that as a user, it is your responsibility to make sure that you are very familiar with the capability and functions the SAT Operating System has to offer. Once you become familiar with the aspects of the software, and you begin to apply its capability to solve actual SAT problems, you will be well on your way to earning a higher score on the SAT test. This is the only way to fully maximize your benefit from using the SAT Operating System. SAT_OS is a tool, much like a hammer, to assist you in crushing SAT math problems! If you intend to use SAT_OS as a crutch, please be aware that Calc-Tech LLC. cannot be responsible for any detriments to your score. Responsible use and practice are the keys to a higher score.

Applying the software for use on actual SAT problems

This is the important part. The best way to learn *how* to apply the software for use on actual SAT problems is to collect actual practice problems, either by purchasing test preparation books, past SAT tests, or downloading or purchasing practice problems from third parties. Look at your practice problems. If you can identify the correct approach to solving each SAT math problem, you have essentially solved the problem. Now is where the SAT Operating System comes in; you know the approach, now all you have to do is make the calculations! If you are working with a triangle, and you have already determined the approach or strategy to solving the problem, your immediate thought should be "F4" (the "Triangles" menu). There you will find all of the tools you might need to make calculations for the triangle problem you're working on. Select the appropriate function (which you will have learned from practicing on similar problems and using SAT_OS to make calculations), enter the values for the variables you're working with, and then simply allow the software to calculate values and generate the correct answer. This general procedure is outlined on the next page.

SAT Math Problem Procedure:

1. Identify the strategy (the approach) needed to solve the problem.
2. Select the corresponding function in the SAT Operating System to make the necessary calculations.
3. Enter numerical values for the variables.
4. Return to the function's main menu after saving values to the variables.
5. Hit "1" to calculate any and all values for all appropriate variables based on the information you provided.
7. Correct values/answers will be automatically generated.
8. Circle the correct answer on your answer sheet or run the program again with the new values you just calculated.

Premium Technical Support

Calc-Tech LLC. offers premium technical support and tutoring for users who would like personalized, one-on-one assistance in learning how to use the SAT Operating System on actual SAT math problems. When you practicing SAT math problems and you encounter a problem you are unsure of how to solve using the SAT Operating System, you can call our technical support center using a landline telephone, call us using Skype, or send us an email (free). For more information on how to reach us, please refer to the "Premium Support and Technical Assistance" section.

Legality of Use

The key to solving problems on the SAT I Reasoning math subsection is identifying the approach. Once you know the strategy, the calculations are just peripheral. This is why the CollegeBoard permits and allows students to use calculators and software on their calculators; they are interested in whether or not you know how to approach the problems, not if you can memorize equations or make computations. If you want further confirmation, it is explicitly stated in the official SAT Calculator Policy that "you are not required to clear the memory on your calculator." In other words, you do NOT have to delete any applications, software, or programs on your calculator prior to taking the SAT I Reasoning math subsection; their use is permitted. If you have any questions or concerns about program usage during the SAT test, please feel free to contact the CollegeBoard or Calc-Tech LLC. at support@calc-tech.com.

Summary

- You must practice on real SAT math problems and learn how to apply the functions and tools SAT_OS has to offer to maximize your benefit from using the software (and your SAT I math score!).
- SAT_OS can help users of all mathematical backgrounds. Even if you are very comfortable with the mathematics section of the SAT and/or math in general, you will still find SAT_OS useful as it reduces the amount of time needed to solve each problem while maximizing accuracy.
- We offer premium support to all of our users if they need help applying SAT_OS to SAT problems.
- The SAT Operating System is completely legal and authorized for use during the SAT I Reasoning math section. If you have any questions, please send us an email at support@calc-tech.com.

2   The Software

Component Program Descriptions

Now we will now go over each of the component programs and describe their function, location within SAT_OS, and the variables used for each program.
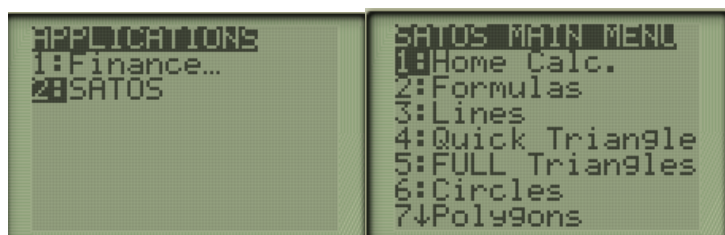
SATOS app—*Program Type: Executable*

This is the main program that launches the operating system. You can think of this program as the equivalent of a Microsoft Windows *.exe executable software program.

Home Calc. —*Program Type: Standard Input*

Description: This program allows the user to perform calculations in much the same way one would use the TI Home Screen. 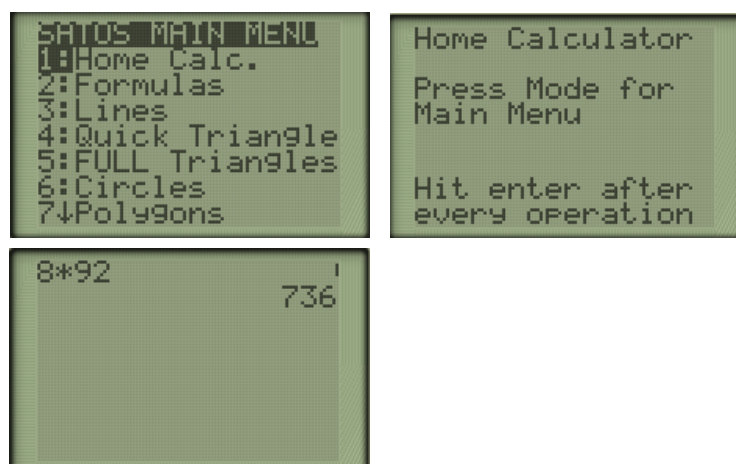When you are using the SAT Operating System and you need to make calculations without the software tools, or you need to make more sophisticated calculations, you will want to return to the TI Home Screen. However, if you do not want to exit SAT_OS, you can use this function to perform quick calculations and immediately return to the main menu of SAT_OS.

Location: The Home Calc. function is located in the root menu of the SAT Operating System as item #1.
Instructions: Hit "Enter" after closing the instructional message to start using the program. Press "Mode" to return to the main menu *after* you make a calculation. Press "Enter" after every calculation you make to continue using the HOMEC program.

NOTE: The program type "*executable*" is unique only to the application itself and the program type "*hybrid*" refers to a mix of Type 1 (menu-based input) and Type 2 (standard input).

NOTE: Do NOT save a value to the variable(s) you want to solve for. If you do not save a value to the variable, its value will be set to 0 and the software will solve for that variable.

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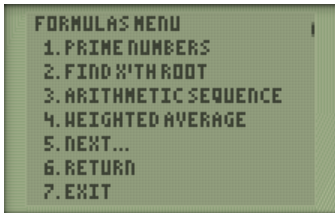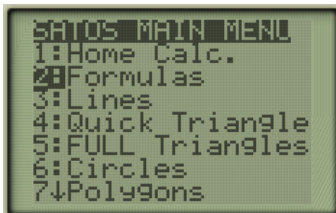
Prime Numbers—*Program Type: Standard Input*

Description: The prime numbers program will determine whether or not the number you enter is prime. When the calculation is complete, the program will allow you to start over or return to the main menu.

Location: "Formulas" menu (main menu option #2), item number 1.
Instructions: Enter an integer value.

Find X'th Root—*Program Type: Standard Input*

Description: This program will allow you to calculate the "x" root of any number. This is helpful if you need to use a root value other than 2 or 3 (for square root and third root, respectively) of a number. In this program "x" represents any positive integer value greater than 1 (2, 3, 4, 5, 6, etc.).
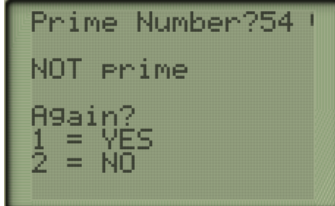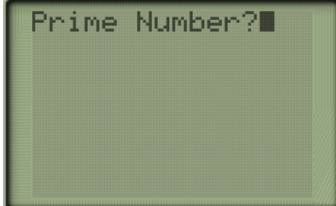
Location: "Formulas" menu (main #2), item number 2.
Instructions: Enter a value for "x" to define what kind of root you will be taking of another number. Then enter a value for the number for which you need an "x" root value.
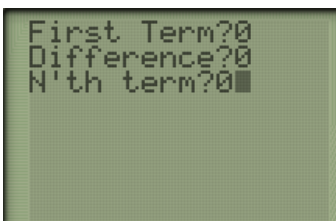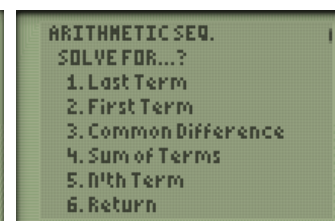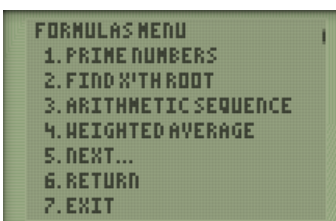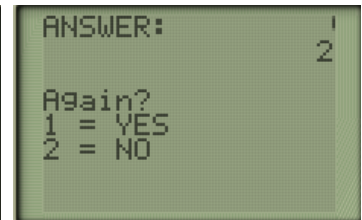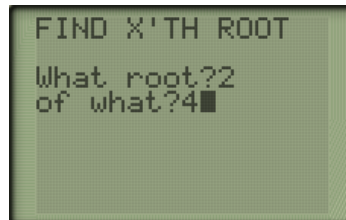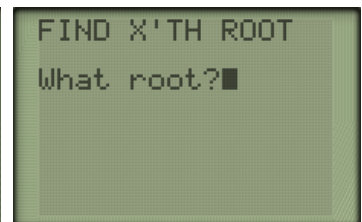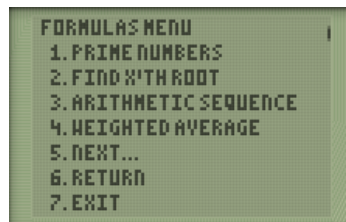
Arithmetic Seq.—*Program Type: Standard Input*

Description: This program will allow you to calculate values for variables used in arithmetic sequences. Variables include: Last Term (1), First Term (2), Common Difference (3), Sum of Terms (4), and the N'th term (5). All variables other than Common Difference relate directly to characteristics of the arithmetic sequence and the common difference is the difference between the individual terms in the arithmetic sequence.

Location: "Formulas" menu (main #2), item number 3.
Instructions: Enter values for the variables (items 1-5 located in the function submenu). Do NOT save a value to the variable(s) you want to solve for. If you do not save a value to the variable, its value will be set to 0 and the software will solve for that variable.

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Calc-Tech™

SATOS MAIN MENU
1:Home Calc.
2:Formulas
3:Lines
4:Quick Triangle
5:FULL Triangles
6:Circles
7↓Polygons

SATOS MAIN MENU
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Weighted Average—*Program Type: Standard Input*

Description: This program allows you to calculate the weighted average for sets of numbers, and also values for the variables used in calculating the weighted average.

Location: "Formulas" menu (main #2), item number 4.

```
FORMULAS MENU
 1.PRIME NUMBERS
 2.FIND X'TH ROOT
 3.ARITHMETIC SEQUENCE
 4.WEIGHTED AVERAGE
 5.NEXT...
 6.RETURN
 7.EXIT
```

```
WEIGHTED AVERAGE

YOU NEED TWO VALUES
 HOW MANY IN EACH SET
 AND
 AVERAGE FOR EACH SET

    PRESS ENTER...
```

```
How many sets?2
```

```
Weighted avg is
               2.5

Again?
1=Y
2=N
```

Instructions: Enter appropriate values at the prompts. For example, if the number of unique sets is 2, then enter values for: the number of values in set 1, the average for set 1, the number of values in set 2, and the average for set 2.

```
FORMULAS MENU
 1.MOTION
 2.REVENUE/COST
 3.BACK...
 4.RETURN
 5.EXIT
```

```
Motion Calculator
SOLVE FOR...?
 1.Distance
 2.Rate
 3.Time
 4.RETURN...
 5.EXIT
 USE CONSISTENT UNITS
```

```
Rate?60
Time?1
```
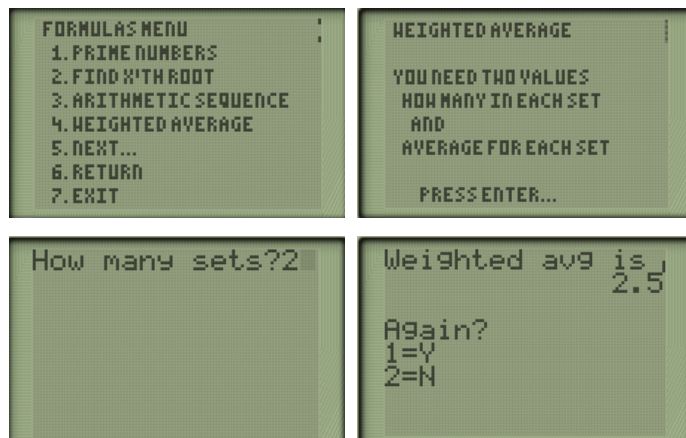
```
The distance is
              60
```
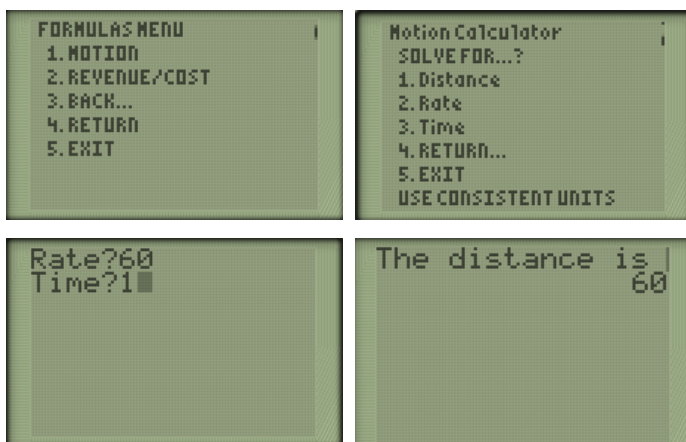
Motion—*Program Type: Standard Input*

Description: This program allows the user to calculate the distance, rate, and/or time variables used in typical SAT motion or rate problems.

Location: "Formulas" menu (main #2), item number 5 (next), then number 1.
Instructions: Press the number that corresponds with the value you are trying to solve. Enter values for at least two variables.

Revenue/Cost—*Program Type: Standard Input*

Description: Very similar in style to the motion component, this program helps the user to calculate values used in revenue and cost SAT problems. Variables include: Revenue (menu item 1), Markup (menu item 2), and Cost (menu item 3).

Location: "Formulas" menu (main #2), item number 5 (next), then number 2.
Instructions: Press the number that corresponds with the value you are trying to solve. Enter values for at least two variables.

```
FORMULAS MENU
 1.MOTION
 2.REVENUE/COST
 3.BACK...
 4.RETURN
 5.EXIT
```

```
Revenue Calculator
SOLVE FOR...?
 1.Revenue
 2.Markup
 3.Cost
 4.RETURN...
 5.EXIT
 USE PROPER UNITS
```
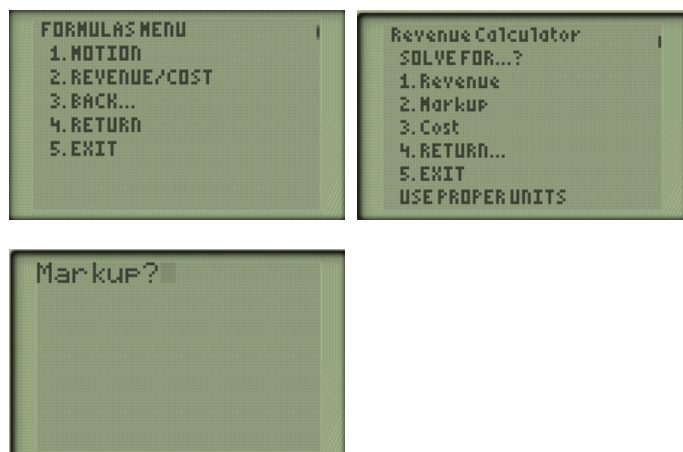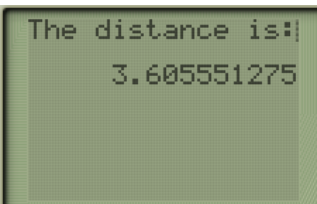
```
Markup?
```
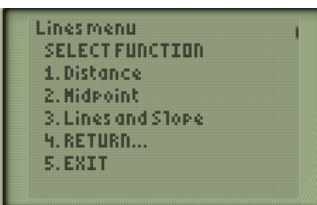
Distance—*Program Type: Standard Input*

Description: This program allows the user to calculate the distance between two (X,Y) coordinate points in a Cartesian plane (coordinate system).

Location: "Lines menu (main #3), item number 1.
Instructions: No variables are used in this program. You need numerical values for all four variables (X1, Y1, X2, and Y2) in order to calculate the distance between the two coordinate points. Hit "ENTER" after each entry to submit the value. After the calculation, you are given the option to run the program again or return to the main menu.
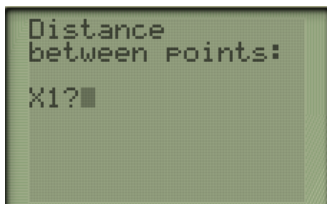
Midpoint—*Program Type: Standard Input*

Description: This program allows the user to calculate the midpoint between two (X,Y) coordinate points in a Cartesian plane (coordinate system).

Location: "Lines menu (main #3), item number 2.
Instructions: No variables are used in this program. You need numerical values for all four variables (X1, Y1, X2, and Y2) in order to calculate the midpoint between the two coordinate points. Hit "ENTER" after each entry to submit the value. After a calculation is made, you are given the option to run the program again or return to the main menu.
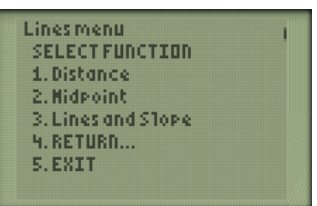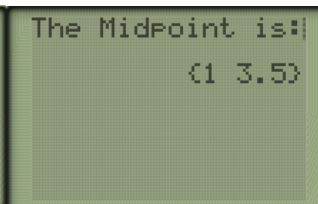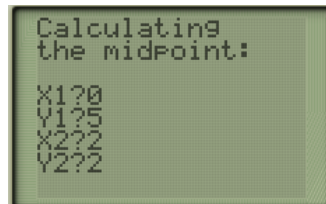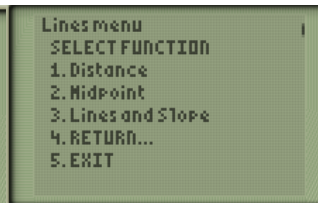
Lines and Slope—*Program Type: Standard Input*

Description: This program allows you calculate the following values: the slope of a line, X-coordinate, Y-coordinate, Y-intercept, and the slope of a line drawn perpendicular to the original line.

Location: "Lines menu (main #3), item number 3.
Instructions: Select the variable you wish to solve for (**Slope, Y-Intercept, Perpendicular slope**) and follow the prompts to find a value.
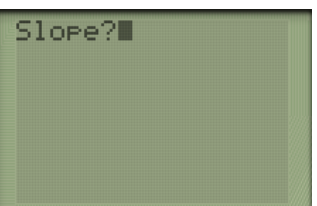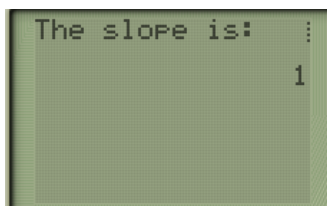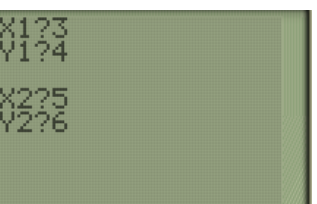
FULL Triangles—*Program Type: Menu-based Input*
(Consists of TRIANGL1.89P, TRIANGL2.89P, and TRIANGL3.89P)

Description: The FULL Triangles function can solve for any of the following variables:

Sides	Angles	Area and Height	Circles
A	D	Area of the Triangle	Radius of an Inscribed Circle (r)
B	E	Height of the Triangle	Radius of an Circumscribed Circle (R)
C	F		

When you launch the FULL Triangles feature, a dialog will appear asking you if you would like to "save values." The purpose of this feature is to allow the user to save any previously stored values for the program variables. For example, let's say you entered numerical values for sides A and B and angle E and you successfully calculated the value for Angle D. You could then hit "ENTER" when this dialog box appears to save the values for sides A and B and angle E so that you do not have to reenter these values when making another calculation to find some other unknown value.
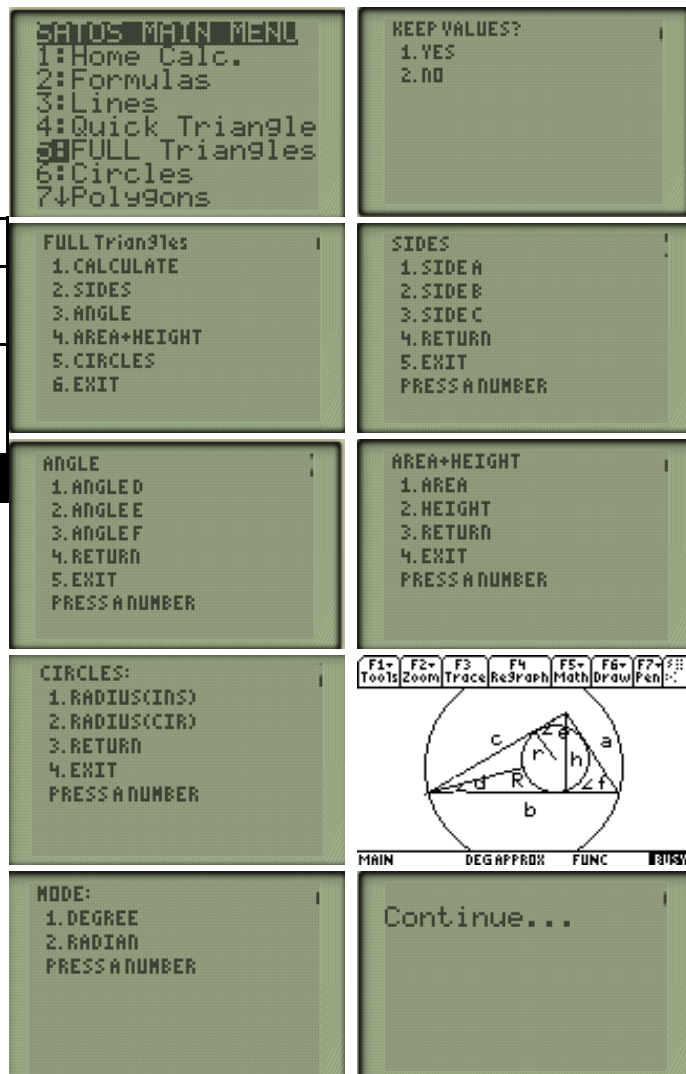
Making Calculations:

        Before you make any calculation, a dialog will appear asking you if you would like to use "Degree" or "Radian" mode. Press "1" for "Degree" mode and "2" for "Radian" mode. The word "Continue…" without a corresponding value will appear if no value was found. In that case, the software requires additional information in order to produce an answer. You should then save the program values and enter values for one or more of the other program variables. *See next page for location and instructions.*

FULL Triangles (*continued*)

Location: "FULL Triangles menu (main #5)

Instructions: Navigate the number menus and enter values for as many variables as you can. Do not save a value for any variables for which you do not have a value (you will need to run the program again if you would like to find additional values). When you are finished saving values, press "1" to calculate values based on your input.

The software will immediately produce the correct answer for you based on the information you submitted. **NOTE**: This version of the SAT Operating System for the TI-83+/TI-84+ includes the "**Automatic Logical Answer Generation Engine.**" This unique mechanism will immediately produce an answer based on available input.

Validate Tri.—*Program Type: Standard Input*

Description: This program determines if there is any combination of the given values that will yield a valid triangle. *This is important*: the letters at the top of the screen represent the sides of the triangle in the following order: left leg, bottom leg, and hypotenuse. The values of A-B-C are arranged so that the first letter is the left leg, the second letter is the bottom leg, and the third letter is the hypotenuse.
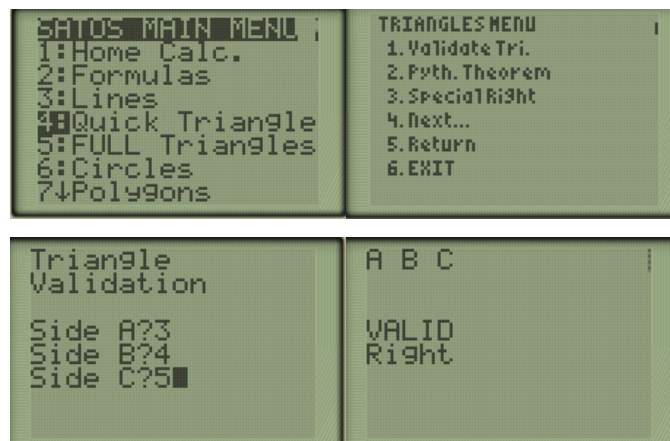
Location: "Quick Triangle menu (main #4), option 1.
Instructions: There are no unknowns for this program; you must enter numerical values for sides A, B, and C.

Pythagorean Thrm.—*Program Type: Menu-based Input*

Description: The FULL Triangles feature is fully capable of solving for all parts of a triangle, but if you know exactly which equation needed to solve a problem, you might want a highly specialized function instead. This program is designed to calculate sides of a triangle using the Pythagorean Theorem. While it may be simpler than FULL Triangles, it is limited to only using sides to calculate values for sides.

Location: "Quick Triangle menu (main #4), option 2.
Instructions: Enter values using the menu and calculate a value for one of the sides by selecting option 1.

Special Right—*Program Type: Menu-based Input*

Description: This program is designed to calculate the sides of the two special right triangles commonly found on the SAT test.

Location: "Quick Triangle menu (main #4), option 3.
Instructions: Enter values using the "Sides" menu and select either the "45-45-90" triangle variant or the "30-60-90" variant by using drop down menus (tabs "F1" and "F2"). Be sure to let at least one variable be the unknown (by using "x" or other equivalent).
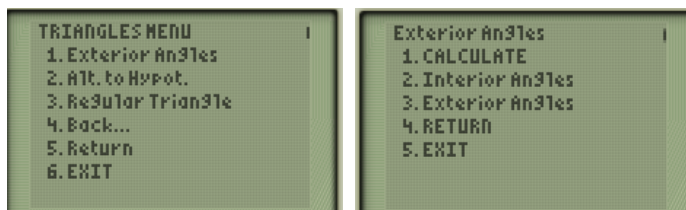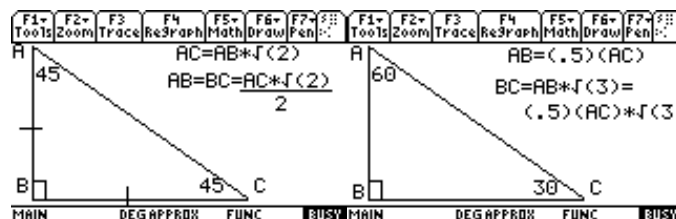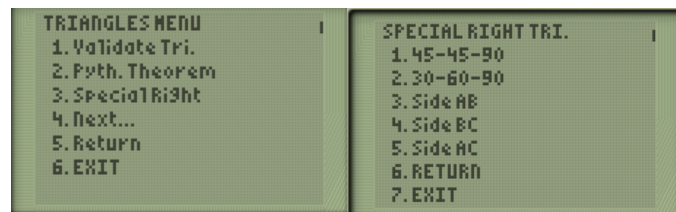
Exterior Angles—*Program Type: Menu-based Input*

Description: This program is designed to calculate the exterior angles of a triangle using values for interior angles (and vice versa).

Location: "Quick Triangle menu (main #4), option 4 (next), then option 1.
Instructions: Enter values using the number menu (2 for interior angle variables, 3 for exterior angle variables).
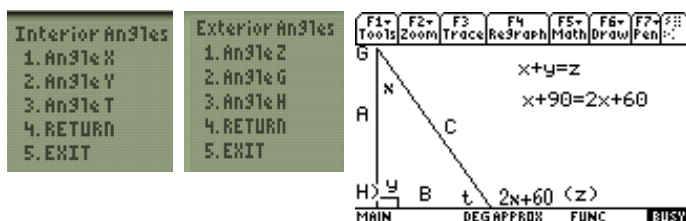
Altitude to Hyp.—*Program Type: Menu-based Input*

Description: This program is designed to calculate the length of the altitude of a triangle drawn to the hypotenuse and the related line segments of the triangle. The items in the "Side values" menu (option 2).

Location: "Quick Triangle menu (main #4), option 4 (next), then option 2.
Instructions: Enter values using the "Sides" number menu. Use menu option 1 to calculate values for the sides.
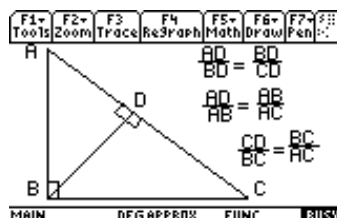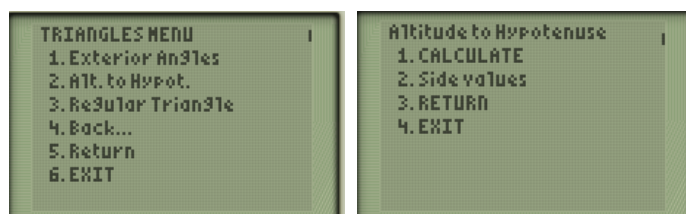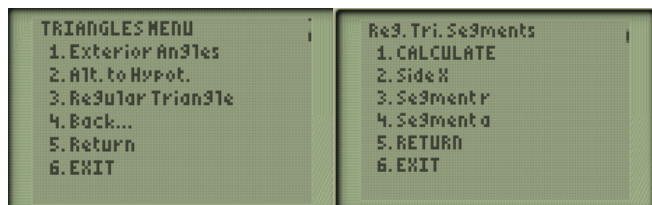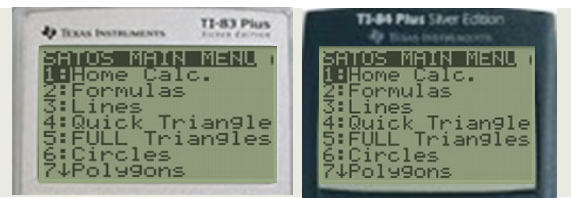
Regular Triangle—*Program Type: Menu-based Input*

Description: This program is designed to calculate the side (they are all equal) and interior line segments of a regular triangle.

Location: "Quick Triangle menu (main #4), option 2.
Instructions: Enter values using the "Line Segments" drop down menu. Assign one variable to be the unknown ("x") and calculate its value using the "F1" tab, item number 1.
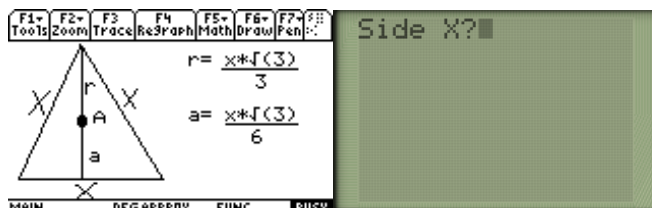
Circle Formula—*Program Type: Standard Input*

Description: This program is designed to use the definition of a circle to calculate the radius, center of a circle (H,K), and the (X,Y) coordinate values of a point on the circle.

Location: "Circles menu (main #6), option 1.
Instructions: Enter all appropriate values to determine the equation of the circle. Variables H, K, and the radius are required.
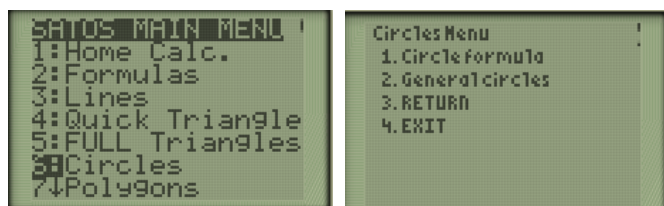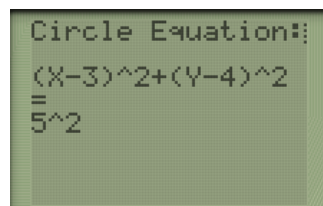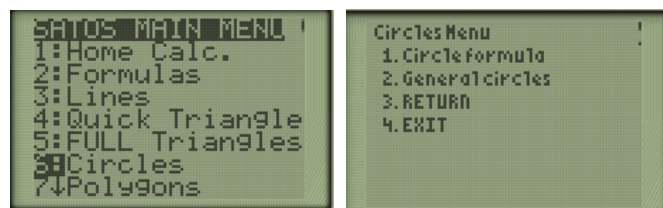
General Circles—*Program Type: Menu-based Input*

Description: This program is designed to calculate values for the parts of a circle (radius, circumference, and area) and also to provide visual illustrations of all the possible SAT circle problems you might encounter and their corresponding equations.

Location: "Circles menu (main #6), option 2.
Instructions: Enter values for the parts of a circle using the menu items in the "Parts" menu"). To calculate the parts of a circle, use item number 1 in the Circle Parts menu.

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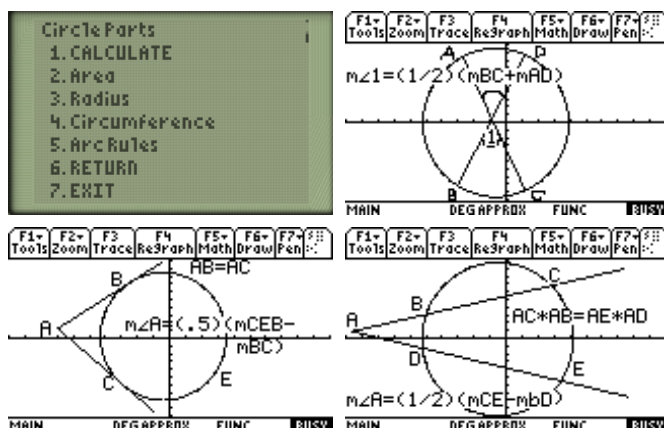
General Polygons—*Program Type: Standard Input*

Description: This program is designed to provide information on any polygon, given the number of sides. Available data includes: the name of the polygon, number of diagonals per vertex, number of triangles formed, sum of interior angles, total number of diagonals, and the sum of exterior angles 1 per vertex.

Location: "Polygons menu (main #7), option 1.
Instructions: Select menu item number 1 ("General Polygons") to enter the number of sides and to calculate information about the polygon.
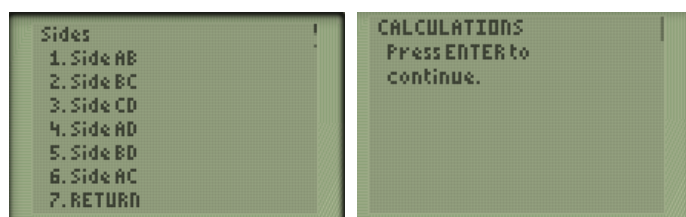
2-D Quadrilateral—*Program Type: Menu-based Input*

Description: This program is designed to calculate values for the parts of a 2-dimensional quadrilateral. Variables include: area, length, and width.

Location: "Polygons menu (main #7), option 2.
Instructions: Enter values for the variables for which you have information. Calculate values using menu item 1 under the "2-D Quadrilateral" menu.

Regular Square—*Program Type: Menu-based Input*

Description: This program is designed to calculate values for the parts of a regular square. Variables include: side of the square (all sides are equal) and sides of an inscribed triangle.

Location: "Polygons menu (main #7), option 3.
Instructions: Enter values for the variables for which you have information. Calculate values using menu item 1 under the "Regular Square" menu.

Calc-Tech™

SATOS MAIN MENU
1:Home Calc.
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4:Quick Triangle
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6:Circles
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SATOS MAIN MENU
1:Home Calc.
2:Formulas
3:Lines
4:Quick Triangle
5:FULL Triangles
6:Circles
7↓Polygons

Polygon Menu
1.General Polygons
2.Quad.(2-D)
3.Regular Square
4.Regular Hexagon
5.RETURN
6.EXIT

Reg.Hexagon Segments
1.CALCULATE
2.Side X
3.Segment r
4.Segment a
5.INFORMATION
6.RETURN
7.EXIT

INFORMATION
This prgm will calculate values for the side of a regular hexagon + the side of an inscribed triangle.

KEY: Side X = Segment r

F1▾ F2▾ F3 F4 F5▾ F6▾ F7▸
Tools Zoom Trace ReGraph Math Draw Pen

r=x

$a= \dfrac{x*\sqrt{(3)}}{2}$

MAIN   DEG APPROX   FUNC   BUSY

Regular Hexagon—*Program Type: Menu-based Input*

Description: This program is designed to calculate values for the parts of a regular hexagon. Variables include: the side of the hexagon (all sides are equal) and sides of an inscribed triangle.

Location: "Polygons menu (main #7), option 4.
Instructions: Enter values for the variables for which you have information. Calculate values using menu item 1 under the "Regular Hexagon Segments" menu.

Cube—*Program Type: Menu-based Input*

Description: This program is designed to calculate the side and surface area of a cube. Variables include: the side (all sides are equal) and the surface area.

Location: "3-D Objects (main #8), option 1.
Instructions: Enter values for the variables for which you have information. Calculate values using menu item 1 under the "Cube" menu.

SATOS MAIN MENU
4↑Quick Triangle
5:FULL Triangles
6:Circles
7:Polygons
8▌3-D Objects
9:Information
0:EXIT

3-D Objects
1.Cube
2.Cylinder
3.Quadrilateral
4.Rectangular Prism
5.Rt.Circular Cone
6.Sphere
7.Return

Cube
1.CALCULATE
2.Side
3.Surface Area
4.RETURN
5.EXIT

Length of one
Side?▉

SATOS MAIN MENU
4↑Quick Triangle
5:FULL Triangles
6:Circles
7:Polygons
8▌3-D Objects
9:Information
0:EXIT

3-D Objects
1.Cube
2.Cylinder
3.Quadrilateral
4.Rectangular Prism
5.Rt.Circular Cone
6.Sphere
7.Return

Cylinder
1.CALCULATE
2.Height
3.Radius
4.Volume
5.Surface Area
6.Return
7.Exit

F1▾ F2▾ F3▾ F4▾ F5 F6▾
Tools Algebra Calc Other PrgmIO Clean Up
INFORMATION!
This program will calculate values for a 3-Dimensional cylinder.

Copyright @2009,
Calc-Tech LLC.
Enter=OK   ESC=CANCEL

MAIN   ▉◙ DEG APPROX   FUNC   0/99

Cylinder—*Program Type: Menu-based Input*

Description: This program is designed to calculate values for the parts of a cylinder. Variables include: height, radius, volume, and surface area.

Location: "3-D Objects (main #8), option 2.
Instructions: Enter values for the variables for which you have information. Calculate values using menu item 1 under the "Cylinder" menu.

3-D Quadrilateral—*Program Type: Menu-based Input*

Description: This program is designed to calculate values for the parts of a 3-dimensional quadrilateral. Variables include: volume, length, width, and height.
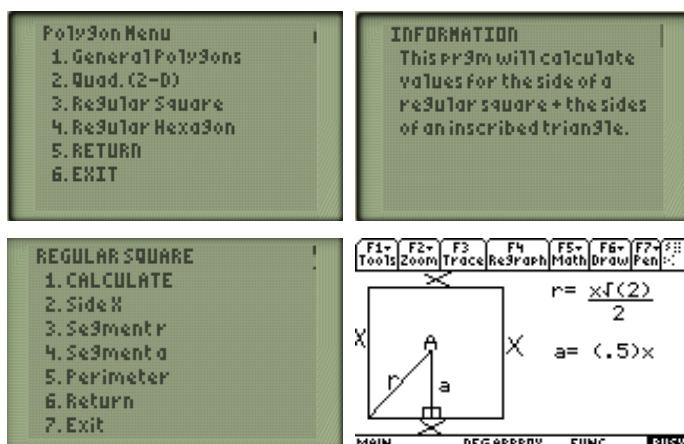
Location: "3-D Objects (main #8), option 3.
Instructions: Enter values for the variables for which you have information. Calculate values using menu item 1 under the "3-D Quadrilateral" menu.
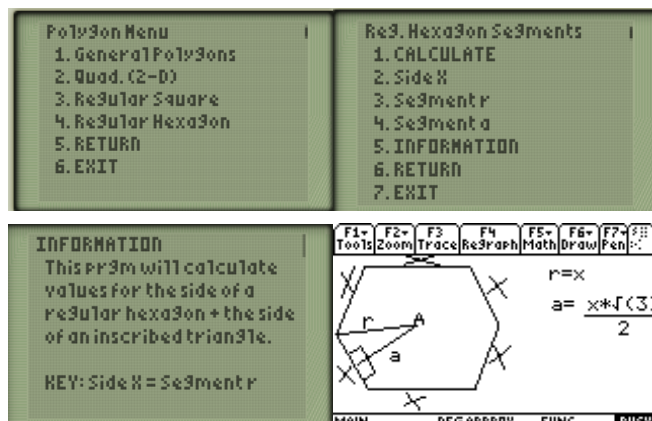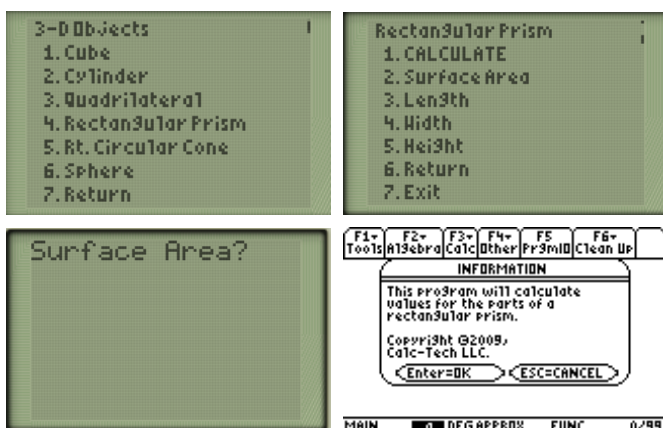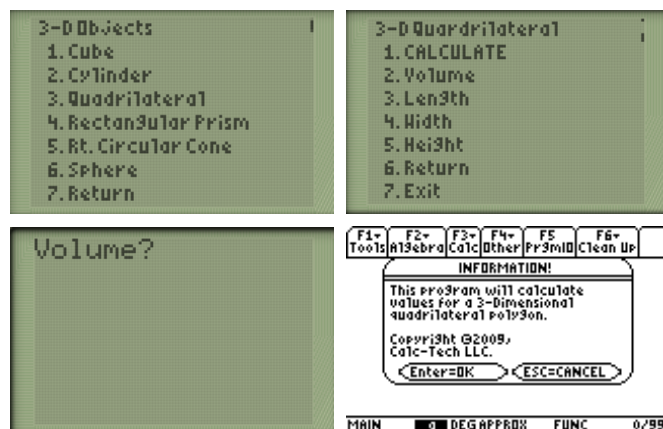
Rectangular Prism—*Program Type: Menu-based Input*

Description: This program is designed to calculate values for the parts of a rectangular prism. Variables include: length, width, height, and surface area.
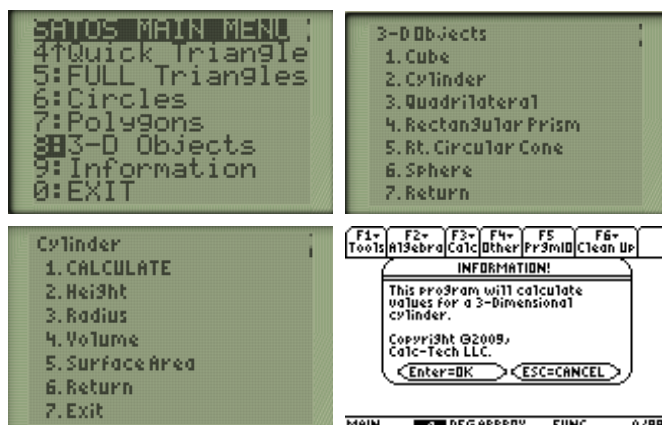
Location: "3-D Objects (main #8), option 4.
Instructions: Enter values for the variables for which you have information. Calculate values using menu item 1 under the "Rectangular Prism" menu.

Right Circ. Cone—*Program Type: Menu-based Input*

Description: This program is designed to calculate values for the parts of a right circular cone. Variables include: height, radius, and volume.

Location: "3-D Objects (main #8), option 5.
Instructions: Enter values for the variables for which you have information. Calculate values using menu item 1 under the "Rectangular Prism" menu.
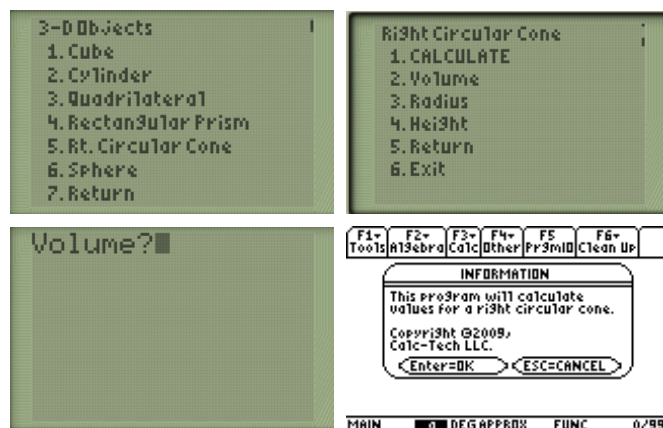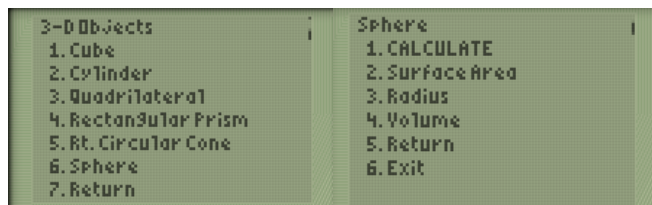
SPHERE.89P—*Program Type: Menu-based Input*

Description: This program is designed to calculate values for the parts of a sphere. Variables include: radius, volume, and surface area.
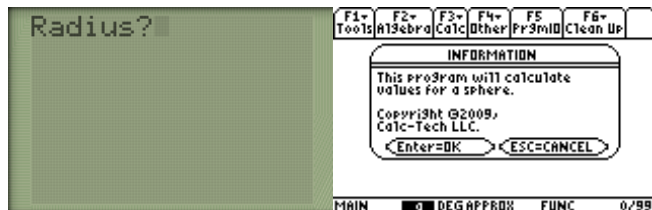
Location: "3-D Objects (main #8), option 6.
Instructions: Enter values for the variables for which you have information. Calculate values using menu item 1 under the "Sphere" menu.

THE END
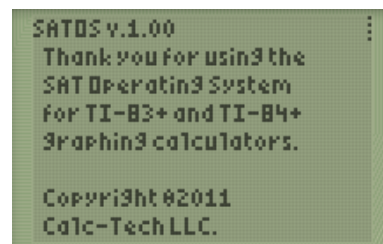
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Cost structure: $20 for a 60 minute prepaid support PIN which is available for purchase via our website (http://www.calc-tech.com). Please call us with your product serial key (issued at checkout) and your premium support PIN ready. We will ask for these items along with your full name to verify your support eligibility. Support time will be consumed on a per-minute basis, rounded to the nearest minute. At the end of the call, we will tell you how much time you have left on your support account.

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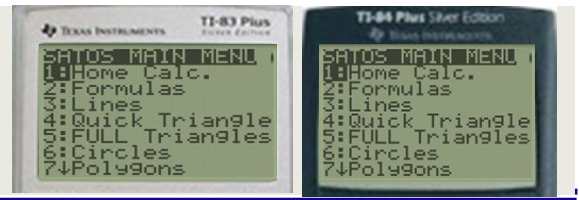
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5 Contact Information and Credits

Contact Information

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