TEXAS INSTRUMENTS

TI-73 / TI 83 Plus
Guess My Coefficients

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What Is the Guess My Coefficients Application?

The Guess My Coefficients application familiarizes you with various forms of linear, quadratic, and absolute value functions.

You determine the coefficients and constants (value such as roots and intercepts) for a function by viewing the graph of the function. If you need help, a **HINT** option shows points on the graph and lets you trace the graph.

The Guess My Coefficients application is a concept application that TI wants to share with our customers, educators, and students before the product definition and testing are complete. It is an alpha software version, and as such, it may contain imperfections, or the coding may be incomplete.

TI invites your feedback concerning the functionality and educational value of the Guess My Coefficients application. Please send your comments and questions to concept@list.ti.com.

What You Need

| **Note** | In this guidebook, any information that pertains to the TI-83 Plus also pertains to the TI-83 Plus Silver Edition, unless otherwise noted. |

Hardware and Software	**Note**
TI-73 with version 1.60 or latest version of the Graph Explorer software —or— TI-83 Plus or TI-83 Plus Silver Edition with version 1.15 or latest version of the operating system (OS) software	You can download a free copy of the latest Graph Explorer or operating system software from education.ti.com/softwareupdates. Follow the link to Operating Systems.
Computer with Microsoft ® Windows® 95/98/2000, Windows NT®, or Apple® MacIntosh® OS 7.1 or higher installed	
TI-GRAPH LINK™ computer-to-device cable	If you do not have this cable, call your distributor or order the cable from the TI on-line store.
TI Connect™ software, which works with most supported models of Flash-based TI graphing devices. —or— TI-GRAPH LINK software that is compatible with the TI-73 or the TI-83 Plus	You can download free copies of TI Connect and TI-GRAPH LINK software from education.ti.com/softwareupdates. Follow the link to Connectivity Software.

Where to Find Installation Instructions

Detailed instructions on installing this and other applications are available at education.ti.com/guides. Follow the link to Flash Installation Instructions.

Getting Help

The instructions in this guidebook are only for this application. If you need help using the TI-73 or TI-83 Plus, refer to its comprehensive guidebook at education.ti.com/guides.

For this application, help is available for each game from the SELECT A GAME and OPTIONS screens, and from each SELECT A FUNCTION screen.

1. Select **HELP** to display the HELP screen.

2. Press ▲ and ▼ to scroll through the help text.
3. Select **BACK** to leave the HELP screen and return to the previous screen.

Starting and Quitting the Application

Starting the Application

1. Press APPS to display the list of applications on your TI-73 or TI-83 Plus.

2. Select **GuesCoef**. The application's information screen is displayed.

3. Press any key to continue. The programmer's screen is displayed.

4. Press any key to continue. The SELECT A GAME menu is displayed.

Quitting the Application

From the SELECT A GAME screen, select **QUIT** (press Y=) or press 2nd [QUIT].
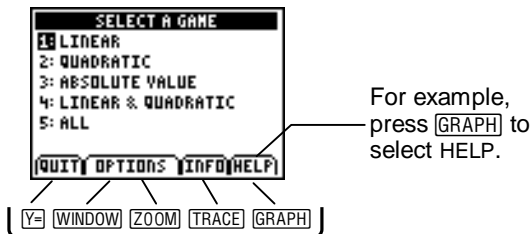
Navigating within the Application

Selecting Menu Items

You can select menu items in the following ways:

- Press $\triangle$ or $\triangledown$ to highlight the menu item, and then press ENTER to select it.

- Press the number key that corresponds to the menu item.

Using On-Screen Options

Each screen displays one or more options along the bottom of the screen. To select an option, press the graphing key directly below the option.
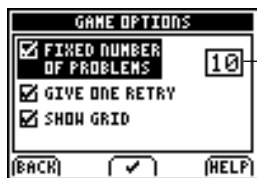

For example, press GRAPH to select HELP.

Setting Game Options

You can set three different options for the games. The options that you select apply to every function type (game) on the SELECT A GAME screen.

Option	Description
Fixed Number of Problems	The game consists of the defined number of problems displayed on the right side of the screen, no matter how many incorrect answers you give. When this option is not selected, you play the game until you have given three incorrect answers.
Give One Retry	You have two chances per problem to input the correct answer.
Show Grid	Displays the grid with the graph of the function.

1. From the SELECT A GAME screen, select **OPTIONS** to display the GAME OPTIONS screen.

— Number of problems box

2. Press $\blacktriangle$ or $\blacktriangledown$ to highlight an option.

3. Select ✓ or press $\boxed{\text{ENTER}}$ to toggle the checkboxes.

4. Select **BACK** to confirm your changes and return to the SELECT A GAME screen.

Changing the Number of Problems

1. On the GAME OPTIONS scree, press $\boxed{\blacktriangle}$ or $\boxed{\blacktriangledown}$ to highlight the number of problems box and then press $\boxed{\text{ENTER}}$.

2. Enter the number of problems (1-99) and then press $\boxed{\text{ENTER}}$.

Tip If you make a mistake when you enter the number of problems, you can correct this in one of the following ways:

- Press $\boxed{\text{CLEAR}}$ to delete the entire number.
- Press $\boxed{\triangleleft}$ to delete the last digit of the number.

Press $\boxed{\text{ENTER}}$ to confirm your changes or $\boxed{\text{2nd}}$ $\boxed{\text{QUIT}}$ to discard.

3. Select **BACK** to confirm your changes and return to the SELECT A GAME screen.

Selecting a Game

1. Select the function type to play from the SELECT A GAME screen.

2. Select a function form from the SELECT A FUNCTION screen to start the game.

    The following function forms are available:

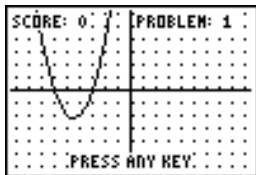 | Function Type | Form |
    | --- | --- |
    | Linear | $y = mx + b$ |
    | | $ax + by = c$ |
    | Quadratic | $y = a \cdot x^2 + k$ |
    | | $y = a \cdot (x - h)^2 + k$ |
    | | $y = a \cdot (x - r)(x - s)$ |
    | Absolute Value | $y = a \cdot |x| + k$ |
    | | $y = a \cdot |x - h| + k$ |

    Tip | You can also play the game with multiple function types instead of just one type. From the SELECT A GAME screen, select **ALL** or **LINEAR & QUADRATIC** or from the function-specific screens, select **BOTH / ALL FORMS**.
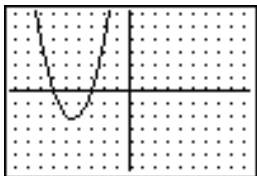
Entering Coefficients and Constants

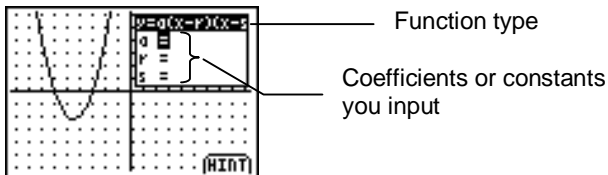Keep the following hints in mind when you enter values.

- The values that you input are always integers.

- For the $y = a \cdot (x - r)(x - s)$ form, the coefficient a is either ⁻1 or 1.

- All multiples of the correct solution for $ax + by = c$ are accepted.

- All problems appear in the window xmin = ⁻9, xmax = 9, ymin = ⁻6, ymax = 6.

- For quadratic and absolute value functions, **a** is from the set $\pm \{1,2,3,4\}$.

1. Select a game. Your score and the number of the current problem are displayed along with the graph of a function.

2. Press any key to study the graph.

3. Press any key to display the input dialog box.

Function type

Coefficients or constants you input

4. Press $\boxed{\blacktriangle}$ or $\boxed{\blacktriangledown}$ to select a coefficient, and then input the value.

5. Repeat step 4 for the remaining value(s), and then press $\boxed{\text{ENTER}}$ to check your answer.

Tip If you make a mistake when you enter a coefficient, you can correct this in one of the following ways:

- Press $\boxed{\text{CLEAR}}$ to delete the entire number.
- Press $\boxed{\blacktriangleleft}$ to delete the last digit of the number.
- Press $\boxed{\text{(-)}}$ to leave the digits unchanged and toggle the sign.

A graph of the function with the values you input is displayed along with the graph of the function in the problem. A message displays stating whether your answer is correct or incorrect.

- If your answer is correct, select **OK** to proceed to the next problem.
- If your answer is incorrect and your game options allow one retry, a message appears telling you to try again.

    – Select **GRAPH** ([TRACE]) to show your guess and the problem, and then press [ENTER] to display the input dialog box.

        —or—

        Select **OK** to go directly to the input dialog box.

    – Repeat steps 4 and 5 to change your input and check your new answer.
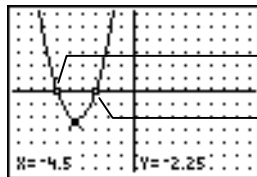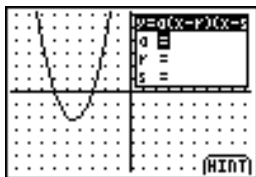
Tip For all function types except $ax + by = c$, a check mark appears next to a correct value in the input dialog box.

- If your final answer is incorrect, select **OK** to display the correct answer.

Using Hints

If you are not sure about the values of a graph, you can obtain a hint, which marks some points on the graph and lets you trace the graph.

1. Select **HINT**.

The hint shows the x-intercepts for this function.

2. Press $\boxed{\blacktriangleleft}$ or $\boxed{\blacktriangleright}$ to trace the graph and display the (x, y) coordinates of the points given in the hint.

Function Type	Points Given in Hints
$y = mx + b$	The y-intercept (0, b); one other point on the graph
$ax + by = c$	Intersections with the axes (c/a, 0) and (0, c/b)
$y = a \cdot x^2 + k$	The vertex (0, k); one other point on the graph at x = 1
$y = a \cdot (x - h)^2 + k$	The vertex (h, k); one other point on the graph at x = h + 1

Function Type	Points Given in Hints
$y = a \cdot (x - r)(x - s)$	The two roots (r, 0) and (s, 0)
$y = a \cdot |x| + k$	The vertex (0, k); one other point at $x = 1$
$y = a \cdot |x - h| + k$	The vertex (h, k); one other point at $x = h + 1$

3. Press any key to return to the input dialog box.

Scoring

Your score is computed based on whether you input the correct answer on the first or second try and whether you used a hint to help you determine the correct answer.

Hint	Correct Answer		Incorrect Answer
	First Try	**Second Try**	
Not used	4	2	-2
Used	3	1	-2

Entering Initials in the High Score Table

When you reach a high score, you can enter your initials in the high score table. The initials displayed are AAA until you change them.

1. Press $\boxed{\blacktriangle}$ and $\boxed{\blacktriangledown}$ to cycle the display through the available letters, in alphabetical order.

2. Press $\boxed{\blacktriangleleft}$ and $\boxed{\blacktriangleright}$ to move the cursor between the positions for each letter.

3. Press $\boxed{\text{ENTER}}$ or select **OK** from the on-screen options to confirm your input.

Your initials and your points are added to the high score list.

Deleting the Application

TI-73

1. [Quit the App](#).
2. Press [2nd] [MEM] to display the MEMORY menu.
3. Select **Delete**.
4. Select **Apps**.
5. Move the cursor to **GuesCoef**.
6. Press [ENTER]. A confirmation message is displayed.
7. Select **Yes** to delete the application.

TI-83 Plus

1. [Quit the App](#).
2. Press [2nd] [MEM] to display the MEMORY menu.
3. Select **Mem Mgmt/Del**.
4. Select **Apps**.
5. Move the cursor to **GuesCoef**.
6. Press [DEL]. A confirmation message is displayed.
7. Select **Yes** to delete the application.

Installation Error Messages

Low Battery

Do not attempt to download a Flash application if the low-battery message appears on the home screen. Low battery indication is shown on the initial screen. If you receive this error during an installation, change the batteries before trying again.

Invalid Signature or Certificate

This application does not need a certificate to run. If this error occurs, it is probably due to a link failure caused by electrical interference. Try to install the application again.

Error in Xmit

This problem is usually associated with the unit-to-unit cable and its connection between the devices. Make sure the cable is firmly inserted in the link port of each device.

Communication Error

This error indicates that the TI Connect™ software ("Unable to communicate with device") or TI-GRAPH LINK™ software ("Link Transmission Error") is unable to communicate with the device. The problem is usually associated with the TI-GRAPH LINK cable and its connection to the device or to the computer.

- Make sure the cable is firmly inserted into both the device link port and the computer.

- Verify that the correct cable type is selected in the software link settings.

- Verify that the correct communications port (Com Port) is selected in the software link settings. (This does not apply if using the USB port and TI Connect software.)

Archive Full

This error occurs when the TI-83 Plus does not have sufficient memory for the application. In order to make room for another application, you must delete an application or archived variables from the TI-83 Plus. Before you delete an application from the TI-83 Plus, you can save it to your computer using TI Connect™ or TI-GRAPH LINK™ software for the TI-83 Plus. You can reload it to the TI-83 Plus later using TI Connect or TI-GRAPH LINK software.

Memory Error

This error occurs when the TI-73 does not have sufficient memory for the application. In order to make room for another application, you must delete an application from the TI-73. Before you delete an application from the TI-73, you can save it to your computer using TI Connect or TI-GRAPH LINK software for the TI-73. You can reload it to the TI-73 later using TI Connect or TI-GRAPH LINK software.

Other Errors

See the TI-73 or TI-83 Plus guidebook. Guidebooks can be obtained from education.ti.com/guides.

Errors during Application Usage

Loss of Settings or High Score

This problem can occur in the following circumstances:

- For the TI-73 and TI-83 Plus, the **GuesCoef** application variable (AppVar) has been deleted. In this case, the settings and high score cannot be recovered.

- For the TI-83 Plus, the **GuesCoef** AppVar has been archived and it cannot be unarchived due to low battery level or insufficient RAM. Replace your batteries, or delete some files to increase RAM on your TI-83 Plus. The settings and high score should be recovered.

Checking Version Numbers and Free Space

Verify Operating System Version and ID Number

The Guess My Coefficients application is compatible with TI-73 Graph Explorer software version 1.60 or latest version, or the TI-83 Plus operating system 1.15 or latest version.

To verify your operating system version number:

1. From the home screen, press [2nd] [MEM].
2. Select **ABOUT**.

The operating system version number is displayed below the product name and has the format x.yy. The ID number appears on the line below the product number.

Verify Flash Application Version

The version number appears on the information screen below the application name. To display the information screen, do one of the following:

*   Press [APPS], and then select **GuesCoef**.

    —or—

*   Select **INFO** from the application's SELECT A GAME menu.

Check Amount of Flash Application Free Space

TI-73

1. From the home screen, press [2nd] [MEM].

2. Select **Check Apps**.

The Guess My Coefficients application requires one free space to load the application. For more information about memory and memory management, refer to the TI-73 guidebook.

TI-83 Plus

1. From the home screen, press [2nd] [MEM].

2. Select **Mem Mgmt/Del**.

The Guess My Coefficients application requires at least 16,384 bytes of ARC FREE (Flash), or one space, to load the application. For more information about memory and memory management, refer to the TI-83 Plus guidebook.

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Page Reference

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