

TI-73 / TI-83 Plus Logic Ladder

How To...

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What is the Logic Ladder Application?

The Logic Ladder application contains two activities:

- In Factor, you determine the prime factorization of numbers by selecting the correct bases and exponents.
- In Classic, you order four to six different shapes, determining the correct shapes in the correct order in less than nine steps. Clues give you an idea of how close you are to the correct sequence.

The Logic Ladder 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 Logic Ladder application. Please send your comments and questions to concept@list.ti.com.

What You Need

Note

In this user guide, any information that pertains to the TI-83 Plus also pertains to the TI-83 Plus Silver Edition, unless otherwise noted.

| Hardware and software | Notes |
|---|--|
| TI-73 with version 1.50 or higher of the Graph Explorer software —or— TI-83 Plus or TI-83 Plus Silver Edition with version 1.13 or higher of the operating system 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 Windows® 95/98/2000, Windows NT®, or Apple® Mac® OS 7.1 or higher installed | |
| TI-GRAPH LINK™ computer-to-calculator cable | If you do not have this cable, call your distributor, or order the cable from TI's online store . |
| TI-GRAPH LINK software that is compatible with the TI-73 or the TI-83 Plus —or— TI™ Connect software (available at the end of 2001). TI Connect works with all supported models of TI graphing calculators. | You can download free copies of TI-GRAPH LINK and TI Connect 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.

Starting and Quitting the Application

Starting the Application

1. Press **[APPS]** to display the list of applications on your calculator.
2. Select **LogicLdr**. The application's information screen is displayed.
3. Press any key to continue. The developer's screen is displayed.
4. Press any key to continue. The main menu is displayed.

Quitting the Application

From the application's main menu, select **QUIT** or press **[2nd] [QUIT]**.

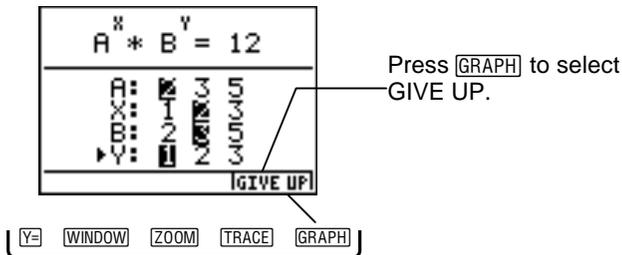
Navigating

Selecting Menu Items

To select an item from a menu, press \downarrow or \uparrow to highlight the menu item, and then press $\boxed{\text{ENTER}}$ to select it.

Using On-Screen Options

The main activity screens display a **GIVE UP** option in the bottom right corner of the screen. To select this option, press the graphing key directly below the option.



Scoring

The Logic Ladder application tracks the number of wins and losses you have accumulated for both of the activities. Scores for the activities are combined. For example, if you completed the Factor activity giving five correct answers and two incorrect answers and also completed the Classic activity giving three correct answers and one incorrect answer, the score would show **WINS: 8 LOSSES: 3.**

Viewing and Resetting the Score

You can view your score at any time by returning to the MAIN MENU and selecting **VIEW STATS.**

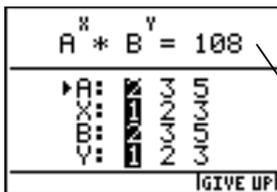
To reset the score, return to the MAIN MENU, and select **CLEAR STATS.**

Completing the Factor Activity

The Factor activity lets students practice factoring numbers into the product of primes.

In the Factor activity, a random number with the prime factorization of the form $A^X * B^Y$ is generated. A and B are the prime bases; X and Y are the powers of the prime bases. You determine which values for A, B, X, and Y create the correct prime factorization of the number.

1. From the MAIN MENU, select **FACTOR**. The FACTOR menu is displayed.
2. Select **START** to display the first number to factor. The arrow is at **A**. The default selections for **A**, **X**, **B**, and **Y** are highlighted.

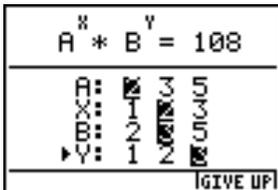


A random number is generated whose prime factorization is of the form $A^X * B^Y$. Your number will be different than this one.

5. Use the arrow keys (\leftarrow and \rightarrow) to highlight the value that you want to select for **A**.

Tip Don't press ENTER yet! Pressing ENTER submits your answer. You must select values for all of the variables before you press ENTER .

6. Press \square to move the arrow to the exponent **X**, and then use the arrow keys (\leftarrow , \rightarrow) to highlight the value that you want to select for the exponent of **A**, **X**.
7. Repeat step 4 to select values for **B** and **Y**.



8. After you have selected all four values, press ENTER .

Tip You can move the arrow back to any base or exponent and change its value before you press ENTER .

If your answer is correct...

Your cumulative score and the correct answer are displayed.

To continue the activity, press

[ENTER].

To quit the activity, press **[2nd]** **[QUIT]** to return to the MAIN MENU.

| | |
|-------------------------|---------------------------------|
| LOGIC LADDER | FACTOR |
| | GOOD JOB! |
| | WINS: 1 |
| | LOSSES:0 |
| | CORRECT ANSWER: |
| | $2^2 \times 3^3 = 108$ |
| | ENTER = PLAY 2nd QUIT = MENU |

If your answer is incorrect...

You have one more opportunity to solve the problem. Select **TRY AGAIN** to return to the problem.

| | |
|-------------------------|------------------|
| LOGIC LADDER | FACTOR |
| | INCORRECT! |
| | TRIES LEFT:1 |
| | TRY AGAIN |
| | GIVE UP |

To move on to another problem, select **GIVE UP**.

When you select **GIVE UP**, or if you answer a problem incorrectly two times, your cumulative score and the correct answer are displayed. Press any key to return to the MAIN MENU.

| | |
|-------------------------|----------------------|
| LOGIC LADDER | FACTOR |
| | YOU LOSE! |
| | WINS: 1 |
| | LOSSES:1 |
| | CORRECT ANSWER: |
| | $2^1 \times 3^1 = 6$ |
| | PRESS ANY KEY |

Completing the Classic Activity

The Classic activity lets students practice logic and pattern recognition skills to determine the order of a set of geometric shapes in nine or fewer tries. After each try, clues indicate the number of correct shapes and the number of shapes that are in the correct order. Activity settings control the number of shapes (4 – 6) and whether shapes can be repeated.

1. From the MAIN MENU, select **CLASSIC**. The CLASSIC menu is displayed.

Tip

- The default settings are
- four shapes
- shapes can be repeated

2. Select **START** to display the first problem. The first shape is highlighted.



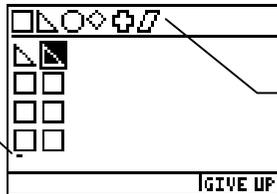
- Press or until the shape that you want to select is displayed.



- Press to move to the second shape or press to submit your answer and display clues about the correct answer.

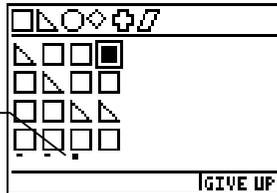
Note After you press , you have completed that try.

A line indicates that one shape is correct, but is not in the correct location.



The activity can have four, five, or six shapes. The shapes displayed at the top of the screen are those that *could* be part of the solution.

A solid square indicates that one shape is correct and that shape is in the correct location.



5. Use your logic skills to determine the pattern of the shapes in in as few tries as possible.

Note You can use up to nine tries to determine the shape pattern.

When you determine the correct shape pattern, the clues show that all of the shapes are in the correct location, and **GOOD JOB!** is displayed at the bottom of the screen.

6. Press any key to display your cumulative score.

Notice that the order of the clues is insignificant. These two squares do not indicate that the first two shapes are correct, but that two of the four shapes are correct and are in the correct location.



If you are not able to determine the shape pattern in nine or fewer tries, a screen is displayed that shows your cumulative score and the correct answer.



7. From the scoring screen, press any key to return to the MAIN MENU.

Changing the Classic Activity Settings

You can change the number of shapes the activity uses and determine whether shapes can be repeated. The default values are **4** and **YES** (4 shapes; shapes can be repeated).

To set the number of shapes:

1. From the CLASSIC menu, select **PIECES**. The display changes to **4 5 6**.



2. Use the arrow keys (,) to move the cursor to the number of shapes that you want the activity to include, and then press . The display changes back to **PIECES**.

To determine whether shapes can be repeated:

1. From the CLASSIC menu, select **REPEAT**. The display changes to **YES NO**.



2. Move the cursor to **YES** if you want to repeat shapes, or move the cursor to **NO** if you do not want to repeat shapes, and then press **ENTER**. The display changes back to **REPEAT**.

Deleting the Application from Your Calculator

TI-73

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

TI-83 Plus

1. Press **[2nd]** **[MEM]** to display the MEMORY menu.
2. Select **Mem Mgmt/Del**.
3. Select **Apps**.
4. Move the cursor to **LogicLdr**.
5. Press **[DEL]**. A confirmation message is displayed.
6. 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

Either this calculator does not have a certificate to run the application, or electrical interference caused a link to fail. 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 calculators. Make sure the cable is firmly inserted in the link port of each calculator.

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 calculator. The problem is usually associated with the TI-GRAPH LINK cable and its connection to the calculator or to the computer.

- Make sure the cable is firmly inserted in the calculator 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.

If this does not correct the problem, try a different TI-GRAPH LINK cable and restart your computer.

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 on 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 software 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 on your computer using TI Connect software or TI-GRAPH LINK software for the TI-73. You can reload it to the TI-73 later using TI Connect software or TI-GRAPH LINK software.

Other Errors

See Appendix B in the [TI-73 manual](#) or pages B-6 through B-10 in the [TI-83 Plus manual](#) for information about the specific error.

Checking Version Numbers and Free Space

Verify Operating System Version and ID Number

The Logic Ladder application is compatible with TI-73 Graph Explorer software version 1.50 and higher or the TI-83 Plus operating system 1.13 and higher.

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 **LogicLdr**.

—or—

- Select **INFO** from the application's main menu.

Check Amount of Flash Application Free Space

TI-73

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

The Logic Ladder application requires one free space to load the application.

For more information about memory and memory management, refer to the [TI-73 manual](#).

TI-83 Plus

1. From the home screen, press **2nd** [MEM].
2. Select **Mem Mgmt/Del**.

The Logic Ladder 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 manual](#).

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