

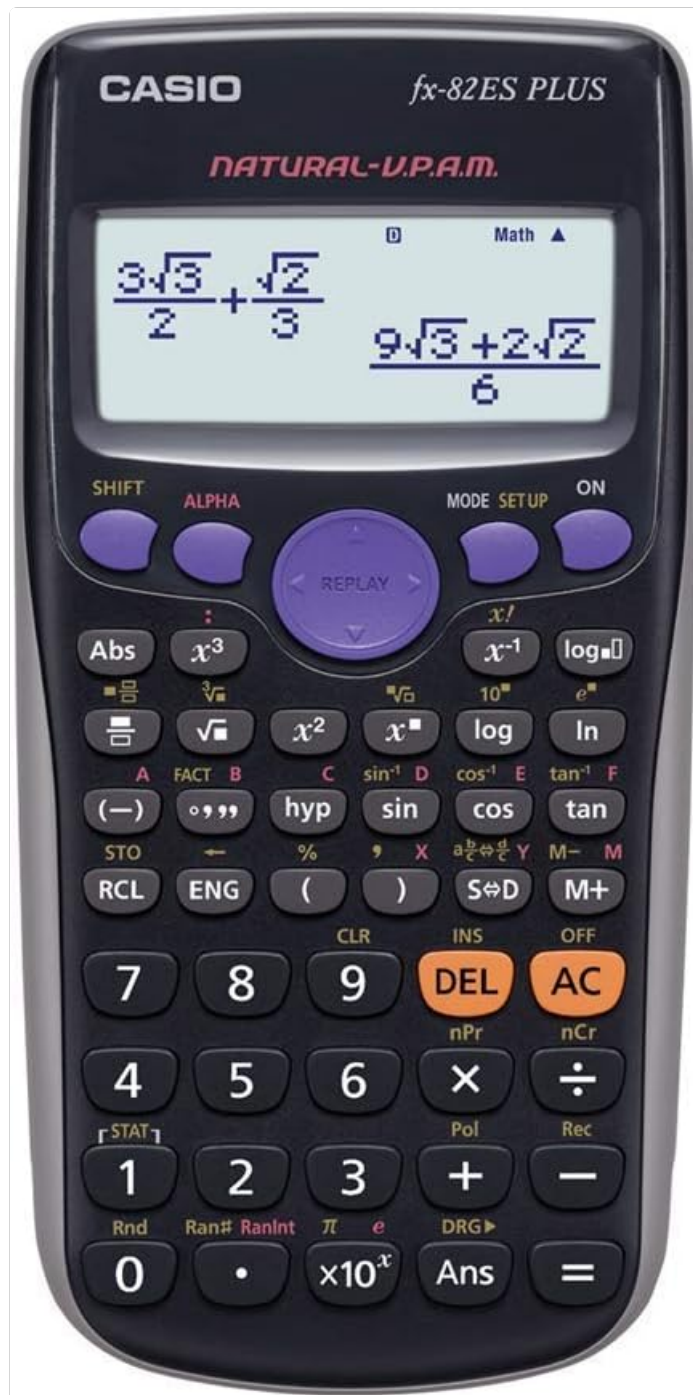
Casio Fx-82es Plus

Casio fx-82ES PLUS Scientific Calculator User Manual

Comprehensive guide for setup, operation, and maintenance.

1. PRODUCT OVERVIEW

The Casio fx-82ES PLUS is a scientific calculator designed for high school and college-level mathematics. It features 252 built-in functions and a Natural Textbook Display, which shows mathematical expressions and results exactly as they appear in textbooks. This enhances readability and comprehension for various subjects including algebra, geometry, and trigonometry.



This image displays the Casio fx-82ES PLUS scientific calculator. The calculator features a black body with purple and orange function keys. Its Natural Textbook Display shows a calculation involving fractions and square roots, specifically $\frac{3\sqrt{3}}{2} + \frac{\sqrt{2}}{3}$ resulting in $\frac{9\sqrt{3} + 2\sqrt{2}}{6}$. Key labels like SHIFT, ALPHA, MODE SETUP, ON, Abs, x^3 , x^{-1} , log, ln, sin, cos, tan, DEL, AC, and number keys are clearly visible.

2. SETUP

2.1 Battery Installation

The calculator is powered by one A-type battery. To install or replace the battery:

1. Ensure the calculator is turned OFF.
2. Carefully remove the battery cover located on the back of the unit.
3. Insert the new battery, ensuring the correct polarity (+/-) is observed.
4. Replace the battery cover securely.

2.2 Initial Settings

After battery installation or for a factory reset:

- Press the **ON** button to turn on the calculator.
- To restore default settings, press **SHIFT** then **CLR** (located above the **AC** button). Select **3 (All)** and then **= (Yes)**.
- Adjust display contrast if needed: Press **SHIFT** then **MODE SETUP**. Navigate to **Contrast** and use the arrow keys to adjust. Press **AC** to exit.

3. OPERATING THE CALCULATOR

3.1 Basic Operations

Perform standard arithmetic calculations:

- Enter numbers using the number keys.
- Use **+**, **-**, **×**, **÷** for addition, subtraction, multiplication, and division.
- Press **=** to display the result.
- Use **AC** to clear the current entry or calculation.

3.2 Scientific Functions

The calculator provides 252 functions. Access secondary functions (printed in yellow above keys) by pressing **SHIFT** before the desired key. Access alpha functions (printed in red above keys) by pressing **ALPHA** before the desired key.

- **Trigonometric Functions:** Use **sin**, **cos**, **tan**. For inverse functions, use **SHIFT** + **sin⁻¹**, **cos⁻¹**, **tan⁻¹**.
- **Logarithmic Functions:** Use **log** (base 10) and **ln** (natural logarithm).
- **Powers and Roots:** Use **x²** for squares, **SHIFT** + **√** for square roots, **x³** for cubes, and **SHIFT** + **³√** for cube roots.
- **Fractions:** Use the fraction key (**a b/c**) to input and display fractions.

3.3 Natural Textbook Display

The Natural Textbook Display (Natural-V.P.A.M.) allows input and display of fractions, exponents, logarithms, roots, and other mathematical expressions as they are written in textbooks. This feature simplifies complex calculations and improves understanding.

3.4 Mode Selection

Press the **MODE SETUP** button to access different calculation modes. Common modes include:

- **COMP (1):** For general arithmetic calculations.
- **STAT (2):** For statistical calculations.
- **TABLE (3):** For generating number tables from functions.

Select the desired mode by pressing the corresponding number.

4. MAINTENANCE

- **Cleaning:** Wipe the calculator with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Storage:** Store the calculator in a cool, dry place away from direct sunlight and extreme temperatures.

- **Battery Replacement:** Replace the battery when the display becomes dim or calculations are inconsistent. Refer to section 2.1 for instructions.

5. TROUBLESHOOTING

- **Blank Display:** Check battery installation. If the battery is low, replace it.
- **"Syntax ERROR":** This indicates an incorrect mathematical expression. Review your input for errors in syntax or function usage. Use the arrow keys to navigate and correct the error.
- **Incorrect Results:** Ensure the calculator is in the correct mode (e.g., COMP for general calculations). Reset the calculator to default settings if necessary (see section 2.2).
- **Unit Conversions and Scientific Constants:** A list of unit conversions and scientific constants is provided on the back cover of the calculator's protective case for quick reference.

6. SPECIFICATIONS

Feature	Specification
Brand	Casio
Model Name	fx-82es Plus
Calculator Type	Engineering/Scientific
Number of Functions	252
Display Type	LCD (Natural Textbook Display)
Power Source	Battery Powered (1 A battery required)
Screen Size	6 Centimeters
Enclosure Material	Plastic
Item Weight	110 Grams

7. WARRANTY AND SUPPORT

For warranty information and customer support, please refer to the documentation included with your product or visit the official Casio website. Keep your purchase receipt as proof of purchase for warranty claims.