

CALCULATOR TIPS:

The Matrix Mode Calculator Shortcut (Casio fx-991ES Plus / ClassWiz)

Determinants of 3×3 matrices are absolute staple problems on engineering board exams. Manually writing out minors and cross-multiplying under pressure often leads to arithmetic slips with negative signs. On the actual exam day, **do not solve this manually**—let your calculator process it instantly.



1. **Enter Matrix Mode:** Press **MODE 6** on the fx-991ES Plus (or select the Matrix icon from the **MENU** page on the fx-991EX ClassWiz).
2. **Define Matrix A:** Choose **1: MatA** and select **1** to set the dimensions to a 3×3 layout.
3. **Input the Coefficients:** Enter the matrix elements row by row, pressing **=** after each value:
 - Row 1: **2, =, 4, =, 3, =**
 - Row 2: **3, =, -2, =, 2, =**
 - Row 3: **2, =, 3, =, -2, =**
4. **Clear the Screen:** Hit the **AC** key. Your data is now securely saved in the matrix memory register.
5. **Call the Determinant Command:** * On the fx-991ES Plus: Press **SHIFT 4 7** (This types out the **det(** function on your screen).
 - Open the matrix list by pressing **SHIFT 4 3** to select **MatA**.
 - Close the parenthesis so your screen reads: **det(MatA)**.
6. Press **=**, and your screen will read **75** instantly!