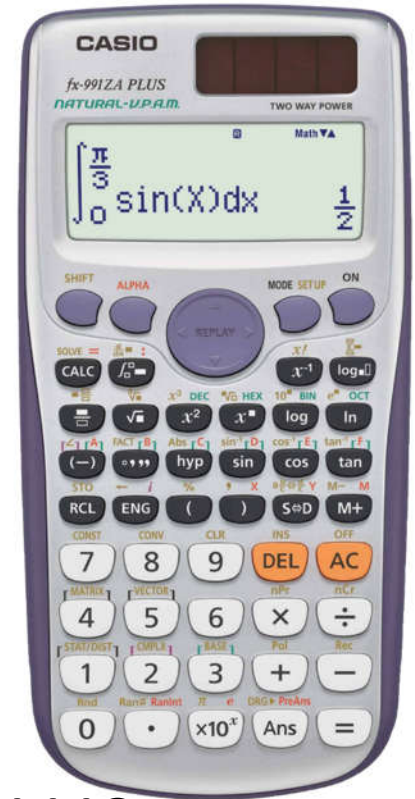


CASIO®

FX-991ZA PLUS



FICHA GERAL

MODE **SETUP**



FX-82ZA PLUS vs. FX-991ZA PLUS

CASIO FX-82ZA PLUS

1: COMP 2: STAT
3: TABLE

CASIO FX-991ZA PLUS

1: COMP 2: CmplX
3: STAT 4: BASE-N
5: EQN 6: MATRIX
7: TABLE 8: VECTOR

NOVAS FUNCIONALIDADES

- Cálculo de **Q1, Med, Q3** no modo Estatístico



- Tabela para DUAS FUNÇÕES - $f(x)$ & $g(x)$

The screenshot shows a table with two columns, F(X) and G(X), and one row of data. The X column has values -2, -1, and 0. The F(X) column has values -2, -1, and 0. The G(X) column has values -6, -4, and 0. The table is displayed on a calculator screen with a grid.

X	F(X)	G(X)
-2	-2	-6
-1	-1	-4
0	0	0


- Cálculo de Mín/Máx no modo Equação (EQN)



- Apresentação de Sem Solução/Solução infinita (No Solution/Infinite Sol, respectivamente) no modo EQN



NOVAS FUNCIONALIDADES

- Comando para *Resultado Anterior* 
- n -ésima potência de um número complexo
- Cálculo de Distribuições

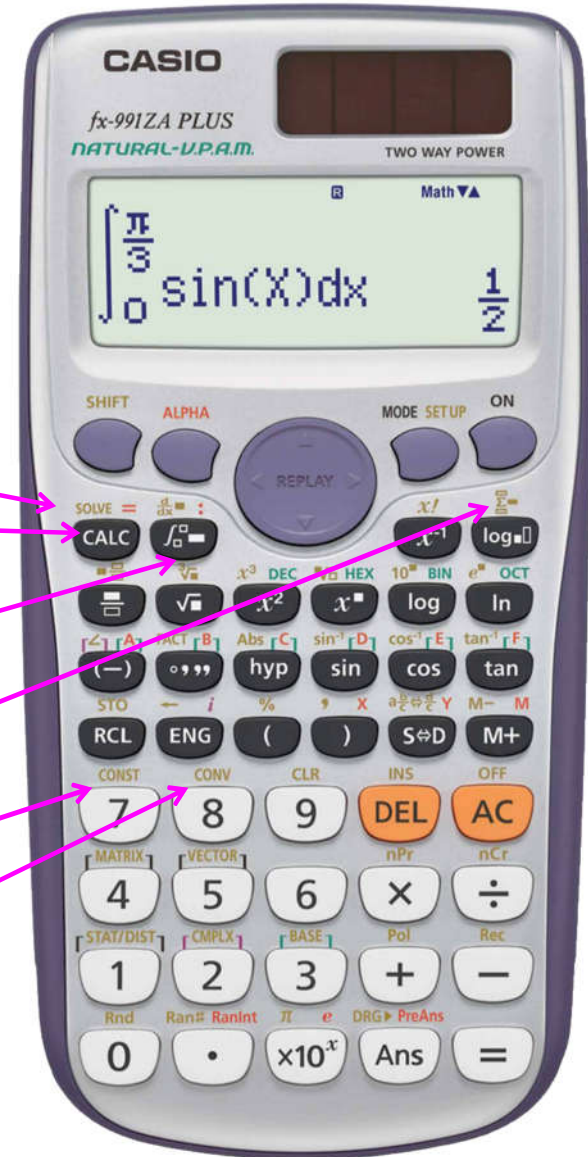


- Factorização em números primos 

- Encerramento automático- 10min/60min



FX-991ZA PLUS



Resolução de EQUAÇÕES

Cálculo (CALC) de valor de uma expressão

Cálculo DIFERENCIAL & INTEGRAL

Cálculo de SOMAS

CONSTANTES CIENTÍFICAS

CONVERSÕES MÉTRICAS

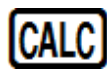
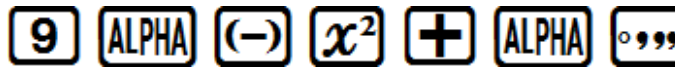
MODO 1: COMP (Modo Computacional)

Usando CALC pode determinar o valor de uma expressão

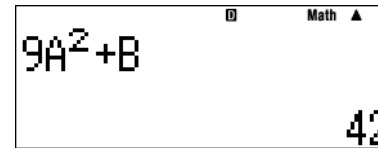
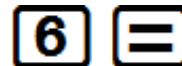
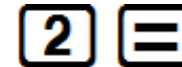
Calcule $9a^2 + b$

se $a = 2$ e $b = 6$

Insira a expressão

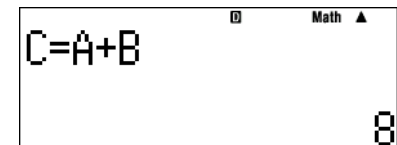
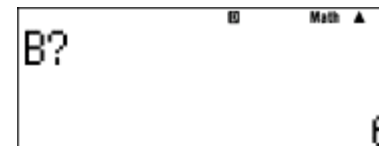
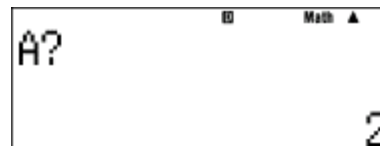
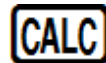
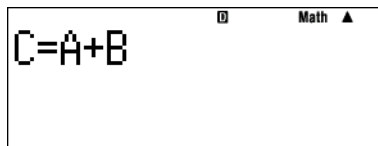


Substituir



2. $c = a + b$

Insira a expressão

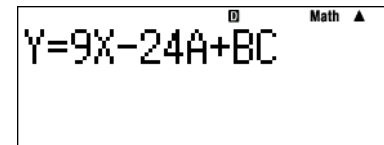


Use SOLVE para determinar a solução de equações

$$y = 9x - 24a + bc, \text{ onde } a = 2, b = 3 \text{ e } c = 6$$

1) Resolva em x , quando

$$y = 0$$



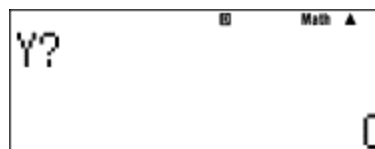
Y=9X-24A+BC

ALPHA S+D ALPHA CALC 9 ALPHA) - 2 4 ALPHA (-) + ALPHA °,° ALPHA hyp



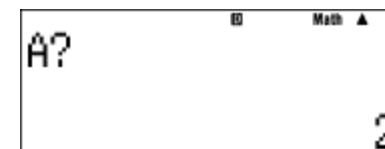
SOLVE =
CALC

SHIFT CALC



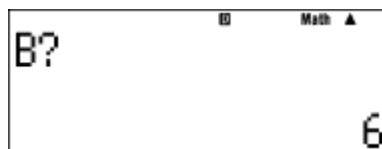
Y? 0

=



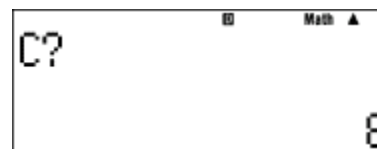
A? 2

=



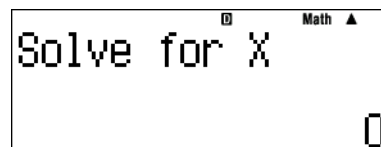
B? 6

3 =



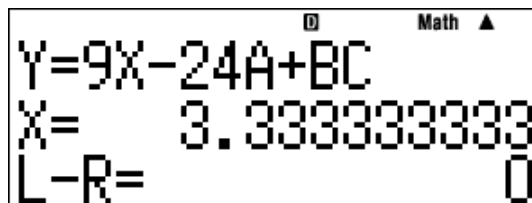
C? 8

6 =



Solve for X 0

=



Y=9X-24A+BC
X= 3.333333333
L-R= 0

→ Expressão

→ Solução

→ Diferença que quanto mais próxima estiver de zero, mais correcta é a solução

2) Resolva em b , quando $y = 3, x = 2, a = 2$ e $c = 6$

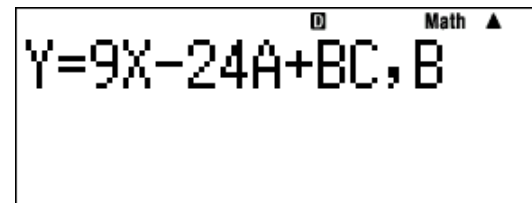
Retorne a expressão



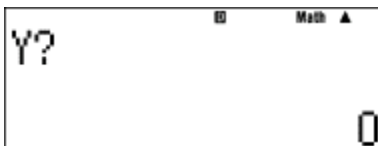
SHIFT CALC



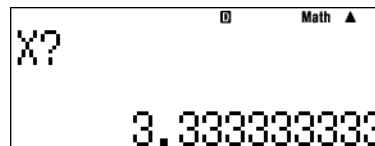
◀ SHIFT) ALPHA 0 9 9 9



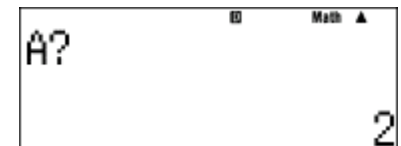
Substituição



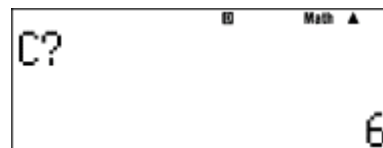
3 =



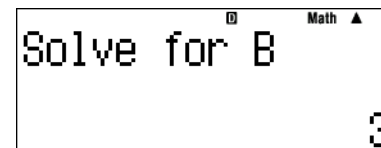
2 =



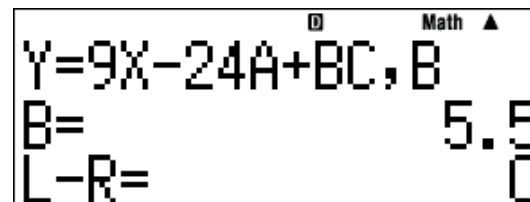
=



=



=



Resolve: $2 \log x + 3 \log x = 10$ se $x = 100$


SOLVE funciona no modo COMPUTACIONAL

SOLVE pode determinar variáveis diferentes de “x”

SOLVE pode resolver diferentes tipos de equações

--Dicas Tecnológicas da CASIO--

SOMENTE use a Tecla **ON** quando for ligar a sua Calculadora Científica.

Para limpar a tela use a tecla **AC**, dessa forma manterá a memória temporária da sua calculadora (veja o sinal  no canto superior direito da sua calculadora)

Use o Cursor para cima (na Tecla **REPLAY**) para acessar os cálculos anteriores.

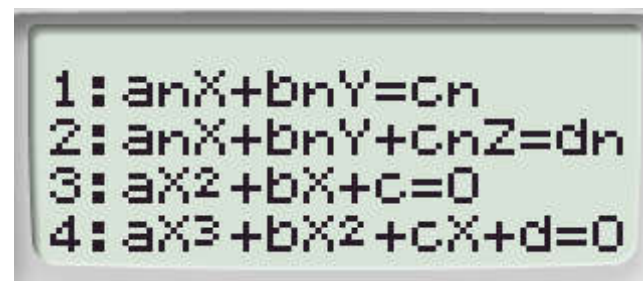
MODO 5: EQN (Equação)

MODE



5

1. Sistema de equações (2 variáveis)
2. Sistema de equações (3 variáveis)
3. Equações Quadráticas
4. Equações Cúbicas



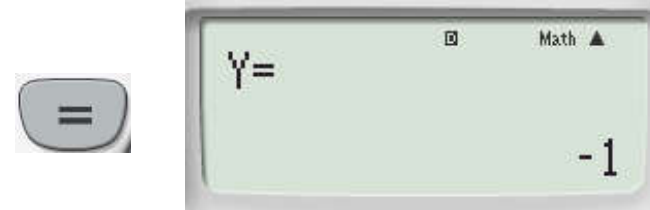
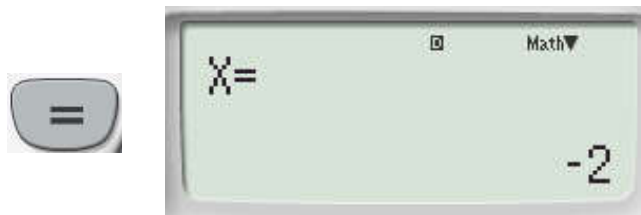
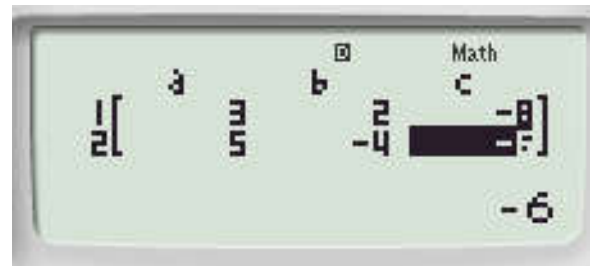
MODO 5: EQN

Resolução de um sistema de equações lineares com duas incógnitas.



Determine x e y se: $3x + 2y = -8$ e $5x - 4y = -6$

3 **=** **2** **=** **-** **8** **=** **5** **=** **-** **4** **=** **-** **6** **=**



MODO 5: EQN

Resolução de uma
EQUAÇÃO CÚBICA

MODE **5** **4**

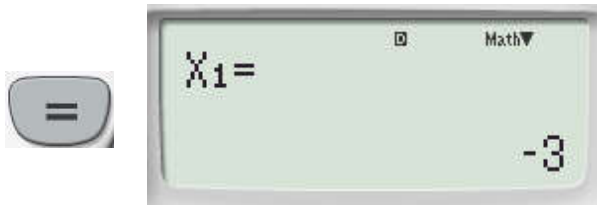


$$2x^3 + 3x^2 = 11x + 6$$

$$2x^3 + 3x^2 - 11x - 6 = 0$$



2 **=** **3** **=** **-** **1** **1** **=** **-** **6** **=**



=



=



Note que a factorização do polinómio cúbico é: $(x + 3)(x - 2)(x + 1/2)$

MODO 5: EQN

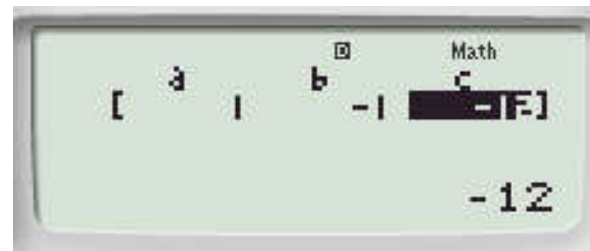
Resolução de EQUAÇÃO QUADRÁTICA

MODE **5** **3**

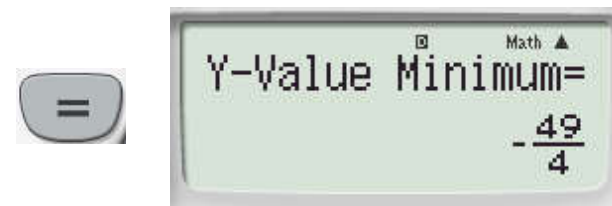
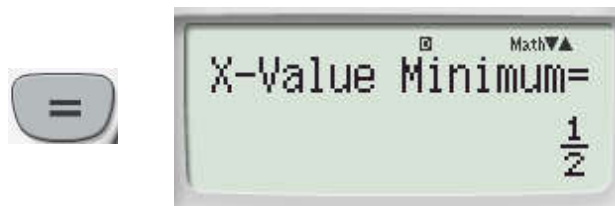
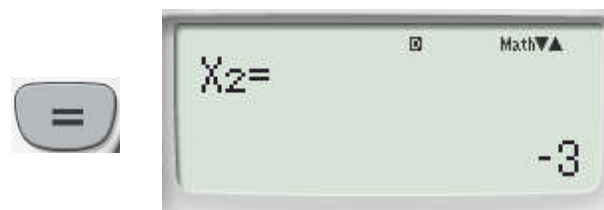
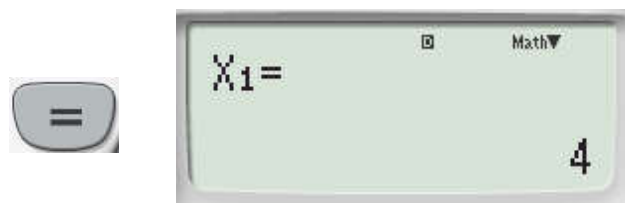


$$x^2 - x = 12$$

$$x^2 - x - 12 = 0$$



1 **=** **-** **1** **=** **-** **1** **2** **=**



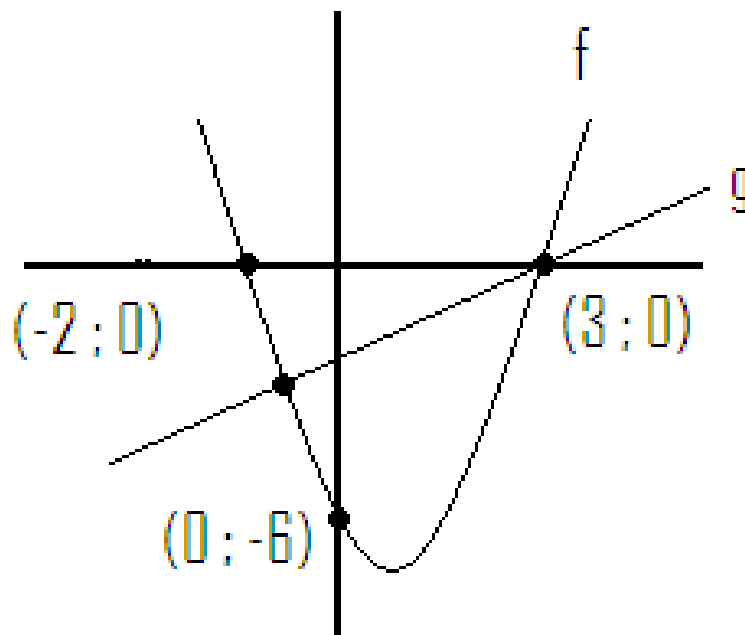
Cálculo

Integração

Encontre a área da região delimitada pelos gráficos

$$f(x) = x^2 - x - 6 \text{ e } g(x) = x - 3$$

Passo 1: Esboce $f(x) = x^2 - x - 6$ e $g(x) = x - 3$ no mesmo SCO, use o MODO TABELA para lhe ajudar



Passo 2: Ache a interseção dos dois gráficos

Usando o modo EQN: Equação quadrática

$$x^2 - x - 6 = x - 3$$

$$x^2 - 2x - 3 = 0$$

$$x_1 = 3 \text{ or } x_2 = -1 \quad \text{Portanto, nosso intervalo é } [-1 ; 3]$$

Passo 3: Defina a integral no modo COMP

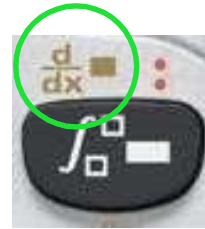


$$\int_{-1}^3 (x - 3) - (x^2 - x - 6) dx$$

Área = 10,667 unidades quadradas

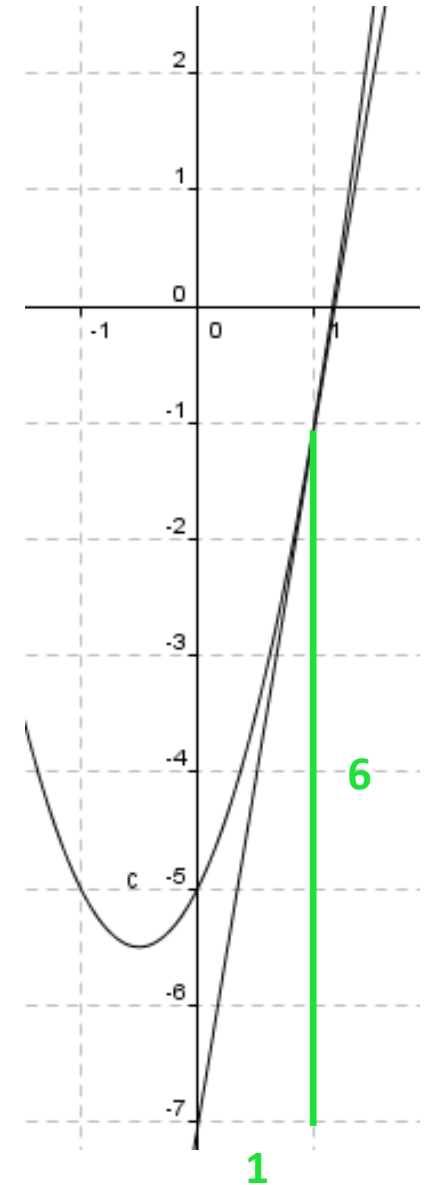
Diferencial

Encontre o gradiente do gráfico
 $y = 2x^2 + 2x - 5$, quando $x = 1$



$$\frac{d}{dx} (2x^2 + 2x - 5) \Big|_{x=1}$$

Gradiente = 6



Notação Σ

Escreva a seguinte soma em notação
Sigma e determine o seu valor:

$$1 \times 2 + 2 \times 3 + 3 \times 4 + 4 \times 5 + 5 \times 6 + 6 \times 7 + 7 \times 8 + 8 \times 9 + 9 \times 10 + 10 \times 11$$



$$\sum_{x=1}^{10} (x(x+1))$$

$$= 440$$

Veja a parte interior da calculadora

Constantes Científicas

[Shift] [7] (CONST) Número 01 – 40

Conversões Métricas

[Shift] [8] (CONV) Número 01 – 40

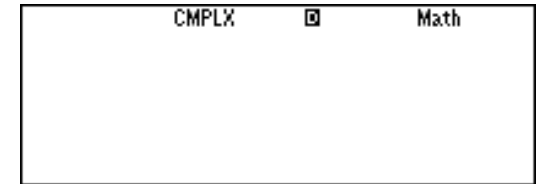


MODO 2: CMPLX (Números Complexos)

MODE

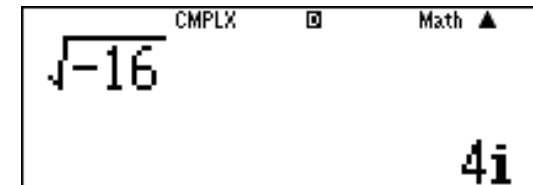


2



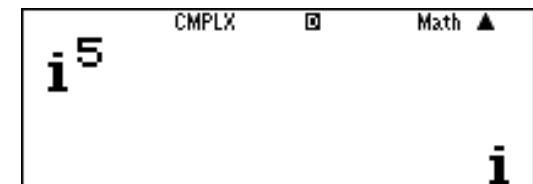
- Expresse $\sqrt{-16}$ em termos de i :

$\sqrt{\square}$ $-$ 1 6 $=$



- Simplifique i^5 :

ENG x^{\square} 5 $=$



MODO 2: CMPLX

- Simplifique $(8 + 6i) + (3 + 2i)$:

(8 + 6 ENG) +
(3 + 2 ENG) =

CMPLX \square Math \blacktriangle
 $(8+6i)+(3+2i)$
 $11+8i$

- Simplifique $-4i(3 - 5i)$:

(-) 4 ENG (3 - 5 ENG) =

CMPLX \square Math \blacktriangle
 $-4i(3-5i)$
 $-20-12i$

- Simplifique $\frac{-5+9i}{1-2i}$

((-) 5 + 9 ENG) $\frac{\square}{\square}$ 1 - 2 ENG =

CMPLX \square Math \blacktriangle
 $\frac{(-5+9i)}{1-2i}$
 $-\frac{23}{5}-\frac{1}{5}i$

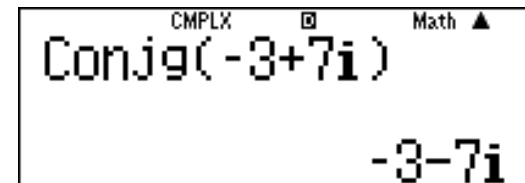
MODO 2: CMPLX

Submenu

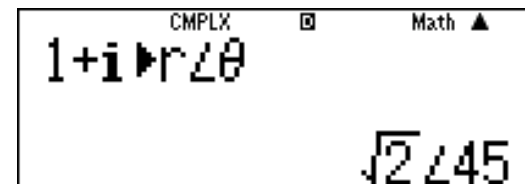
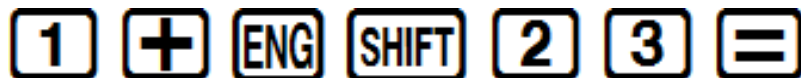


1: arg	2: Conjg
3: $r\angle\theta$	4: $a+bi$

- Encontre o par conjugado de $-3 + 7i$:



- Encontre o módulo e o argumento de $1 + i$:



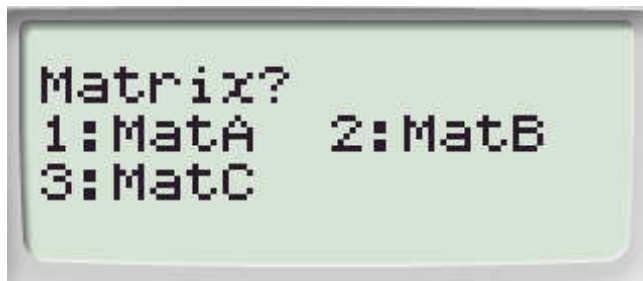
MODO 6: MATRIX (Matrizes)

MODE



6

Execute cálculos envolvendo matrizes de até 3x3.



Para executar cálculos envolvendo matrizes, atribua os dados das matrizes as variáveis especiais (**MatA**, **MatB**, **MatC**) e use-as nos cálculos.

MODO 6: MATRIX (Matrizes)


Atribua a matriz $\begin{pmatrix} 2 & 1 \\ 1 & 1 \end{pmatrix}$ à **MatA**

1


MatA(mxn) mxn?
 1: 3x3 2: 3x2
 3: 3x1 4: 2x3
 5: 2x2 6: 2x1

2x2

5

MAT ID
 A []
 0

2 = 1 =
 1 = 1 =

MAT ID
 A [2 ]
 1

Atribua a matriz $\begin{pmatrix} 2 & 1 \\ 1 & 1 \end{pmatrix}$ à **MatB**



SHIFT 4

1:Dim 2:Data

2

Matrix?
 1:MatA 2:MatB
 3:MatC

2 5

2 = (-) 1 = (-) 1 = 2 =

MAT ID
 B [-2 ]
 2

MODO 6: MATRIX (Matrizes)

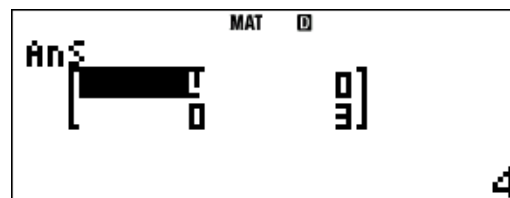
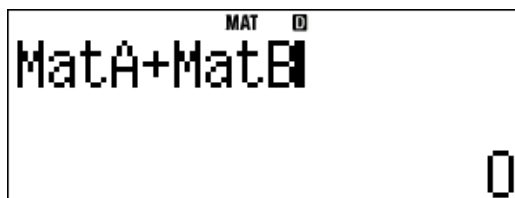
Pressione **AC** E execute o cálculo

Submenu



1: Dim	2: Data
3: MatA	4: MatB
5: MatC	6: MatAns
7: det	8: Trn

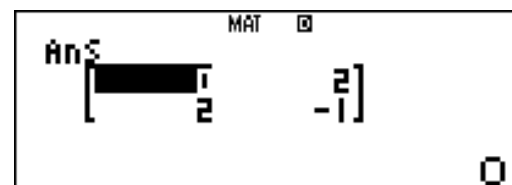
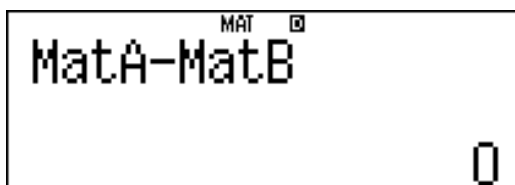
- **(MatA + MatB):** **3** **+** **SHIFT** **4** **4**



- **(MatA - MatB):** **AC** **SHIFT** **4**

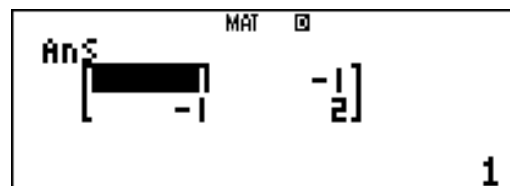
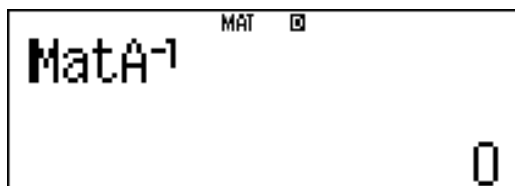


1: Dim	2: Data
3: MatA	4: MatB
5: MatC	6: MatAns
7: det	8: Trn

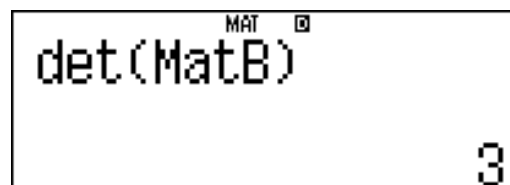
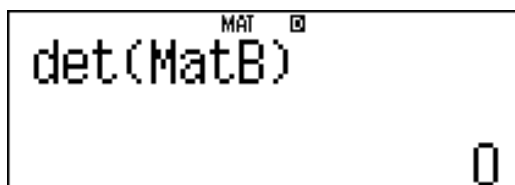
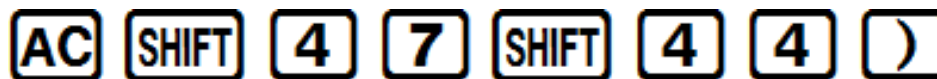
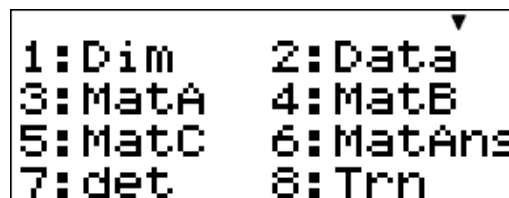


MODO 6: MATRIX (Matrizes)

- Inversa de **MatA**:



- Determinante de **MatB**:



MODO 6: MATRIX (Matrizes)

- Edição de dados variáveis:

AC **SHIFT** **4**

1: Dim	2: Data
3: MatA	4: MatB
5: MatC	6: MatAns
7: det	8: Trn

1 **MatA** $\begin{pmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{pmatrix}$

Matrix?
1: MatA 2: MatB
3: MatC

1 3x2 **2** **1** **=** **2** **=** **3** **=**
4 **=** **5** **=** **6** **=**

MAT $\begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$

MatB $\begin{pmatrix} 7 \\ 8 \end{pmatrix}$ **SHIFT** **4** **1** **2** 2x1 **6**

MAT $\begin{bmatrix} 7 \\ 8 \end{bmatrix}$

7 **=** **8** **=**


MAT $\begin{bmatrix} 7 \\ 8 \end{bmatrix}$

MODO 6: MATRIX (Matrizes)



- (MatA × MatB): **AC** **SHIFT** **4**

3 **X** **SHIFT** **4** **4**

1:Dim	2:Data
3:MatA	4:MatB
5:MatC	6:MatAns
7:det	8:Trn

MAT 
MatA×MatB

=

MAT 
Ans
[]
23


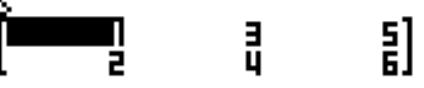
- Transposição de MatA: **AC** **SHIFT** **4**

8 **SHIFT** **4** **3** **)**

1:Dim	2:Data
3:MatA	4:MatB
5:MatC	6:MatAns
7:det	8:Trn

MAT 
Trn(MatA)

=

MAT 
Ans
[]
1

MODO 4: BASE-N (Modo Base-N)

MODE **4**

x^3 DEC $\sqrt[n]{x}$ HEX 10^x BIN e^x OCT
 x^2 x^y log ln

Converta o número decimal 75 em binário

7 **5** **=** **log**

75
Bin
00000000001001011

Converta o número binário 110001 em decimal

110001
Dec
49

1 **1** **0** **0** **0** **1** **=** **x^2**

Adicione os seguintes números binários:
1010+1111

1010+1111
Bin
00000000000011001

log **1** **0** **1** **0** **+** **1** **1** **1** **1** **=**

Subtraia os seguintes números binários:
111-101

111-101
Bin
0000000000000010

log **1** **1** **1** **-** **1** **0** **1** **=**

Multiplique os seguintes números binários:
101 x 11

101x11
Bin
00000000000001111

log **1** **0** **1** **×** **1** **1** **=**

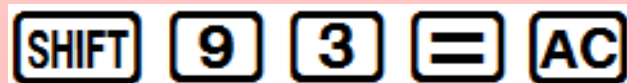
Divida os seguintes números binários:
1101÷11

1101÷11
Bin
0000000000000100

log **1** **1** **0** **1** **÷** **1** **1** **=**

Inicialize/redefina a sua calculadora

Quando quiser limpar a memória da sua calculadora e retorná-la às configurações padrão de fábrica:



Nota: Esta operação também limpa todos os dados presentes na memória temporária da calculadora

