

Using the CASIO FX-991ZA PLUS Scientific Calculator to solve equations.

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USING THE CALC FUNCTION:

The *CALC* function can be used for direct substitution/ finding the value of expressions.

Eg 1: Calculate the following- $3A^2+4B$, if $A=6$ and $B=2$.

Enter the expression given $3A^2+4B$

Press the *CALC* button

Enter the value for A ? 6 and Press Equals =

Enter the value for B ? 2 and Press Equals =

The solution is given automatically

Eg 2: Calculate the following $A=5B+2C$, if $B=3$ and $C=4$.

Enter the expression $A=5B+2C$ (Alpha Calc: this will give you the = sign)

Press the *CALC* button

Enter the value for B ? 3 and Press Equals =

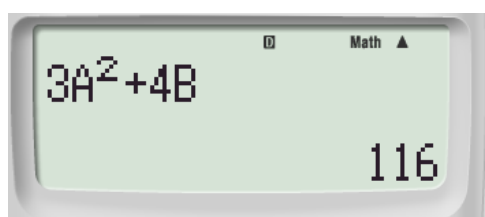
CALC Eg 1 Key log: **MODE** **1**

3 **ALPHA** **(-)** **x^2** **+** **4** **ALPHA** **“”**

CALC

6 **=**

2 **=**

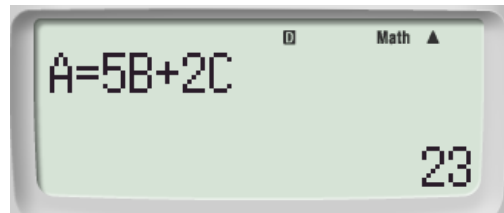


CALC Eg 2 Key log: ALPHA (←) ALPHA CALC 5 ALPHA (⋮) + 2 ALPHA hyp

CALC

3 =

4 =



USING THE SOLVE FUNCTION:

The SOLVE function is used to solve unknowns in equations.

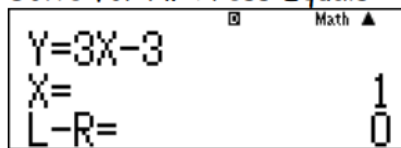
Eg 1: Solve the following equation $Y=3X-3$ if $Y=0$.

Enter the Equation $Y=3X-3$.

Press SHIFT CALC (SOLVE)

Y? Enter the value 0 and Press Equals =

Solve for X. Press Equals =



This is the original Equation.

This is the Solution for B (height)

This is the Left side minus right side equal to zero.

Eg 2: Using the SOLVE function to change the subject of the formula.

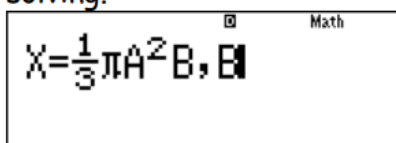
A cone has a volume given by the formula $V = \frac{1}{3}\pi r^2 h$.

Calculate the height of the cone if the volume is 30cm^3 and the radius is 2.3cm.

To enter this into the calculator substitute using the letters A-F, X, Y and M.

$$X = \frac{1}{3}\pi A^2 B$$

You are required to calculate the height (B) so therefore we place a comma at the end of the equation/ formula followed by the letter you are solving.

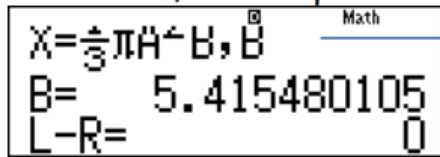


Press Shift Solve

X? Enter the value 30 and Press =

A? Enter the A value 2.3 and Press Equals =

Solve for B, Press Equals =



This is the original Equation.

This is the Solution for B (height)

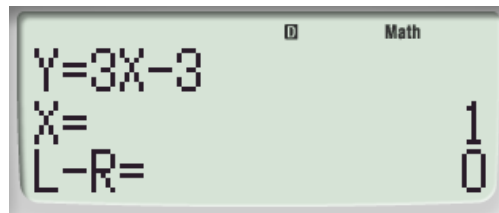
This is the Left side minus right side equal to zero.

SOLVE Eg 1 Key log: $\boxed{\text{ALPHA}} \boxed{\text{S}\div\text{D}} \boxed{\text{ALPHA}} \boxed{\text{CALC}} \boxed{3} \boxed{\text{ALPHA}} \boxed{)} \boxed{-} \boxed{3}$

$\boxed{\text{ALPHA}} \boxed{\text{CALC}}$

$\boxed{0} \boxed{=}$

$\boxed{=}$



SOLVE Eg 2 Key log:

$\boxed{\text{ALPHA}} \boxed{)} \boxed{\text{ALPHA}} \boxed{\text{CALC}} \boxed{1} \boxed{\frac{\square}{\square}} \boxed{3} \boxed{\blacktriangleright} \boxed{\text{SHIFT}} \boxed{\times 10^x} \boxed{\text{ALPHA}} \boxed{(-)} \boxed{x^2} \boxed{\text{ALPHA}} \boxed{\text{,,,}} \boxed{\text{SHIFT}}$

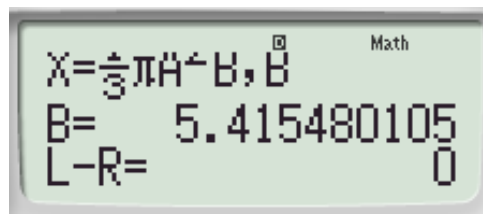
$\boxed{)} \boxed{\text{ALPHA}} \boxed{\text{,,,}}$

$\boxed{\text{ALPHA}} \boxed{\text{CALC}}$

$\boxed{3} \boxed{0} \boxed{=}$

$\boxed{2} \boxed{\cdot} \boxed{3} \boxed{=}$

$\boxed{=}$



Solve: $2 \log x + 3 \log x = 10$
 $x = 100$

AC 2 log ALPHA)) + 3 log ALPHA)) ALPHA CALC 1 0 SHIFT
CALC =

SOLVE works in COMPUTATIONAL mode
SOLVE can solve for variables other than "x"
SOLVE works for equations other than quadratic & cubic