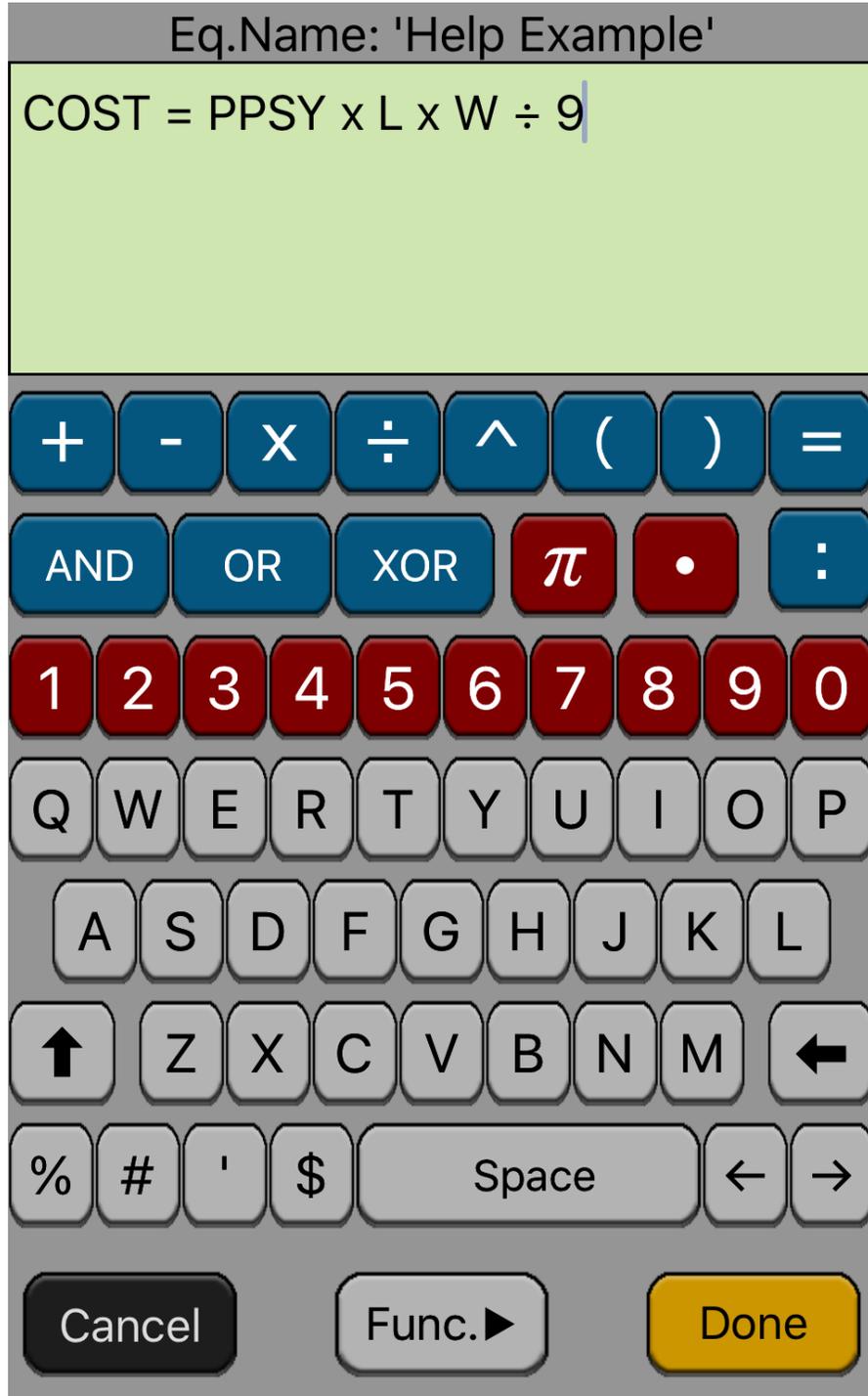# Solver Menu

The calculator has a powerful equation solver menu to store and edit equations that you enter. To show it, touch the "**OPT**" and in the "**1) Scientific**" section, touch the "**SOLVER**" button.

CALC	NEW	EDIT	DELET	NAME

17B-P196-ODD:PVx(I%÷100xFP(...

17B-P198-CAN:PV=-PMTxUSPV(...

17B-P199-ADV:PMT=(-PV-FVx(S...

17B-P213-POLICY:INS = ((PREM...

17B-P216-NOTEP:PRICE = RV-(D...

17B-P216-NOTEY:YIELD = (RV-P...

The listing shows all the equations successfully entered into memory. When one is selected, touching "CALC" creates a menu with all the variables of the equation. Then any variable can be calculated using the values stored in the others.

Solver Menu Buttons	
[CALC]	Shows the solver menu of the selected equation.
[NEW]	Shows the **Equation Editor View** to create a new equation.
[EDIT]	Shows the **Equation Editor View** to edit the selected equation.
[DELET]	Delete the selected equation.
[NAME]	Allows to enter a name for the selected equation

Equation Editor View

Eq.Name: 'Help Example'

COST = PPSY x L x W ÷ 9

| + | - | X | ÷ | ^ | (|) | = |

| AND | OR | XOR | π | • | : |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

| Q | W | E | R | T | Y | U | I | O | P |

| A | S | D | F | G | H | J | K | L |

| ⬆ | Z | X | C | V | B | N | M | ⬅ |

| % | # | ' | $ | Space | ← | → |

| Cancel | Func.▶ | Done |

The Equations Editor view allows you to edit and existing equation or create a new one.

Solver Build-In Functions

ABS(x) : Absolute value of "x".
ACOS(x) : Arc-cosine of "x" in the current angle mode.
ACOSH(x) : Hyperbolic Arc-cosine of "x".
ALOG(x) : Common (base 10) antilogarithm; 10^x.
ALOG2(x) : Base 2 antilogarithm; 2^x.
ANGLE(x:y) : Angular polar coordinate for an (x.y) rectangular coordinate calculated in the current angle mode.
ASIN(x) : Arc-sine of "x" in the current angle mode.
ASINH(x) : Hyperbolic Arc-sine of "x"
ATAN(x) : Arc-tangent of "x" in the current angle mode.
ATANH(x) : Hyperbolic Arc-tangent of "x".
CDATE : Current Date in the current date format.
COMB(x:y) : Number of combination of "x" items taken "y" at a time.
COS(x) : Cosine of "x" in the current angle mode.
COSH(x) : Hyperbolic Cosine of "x".
CTIME : Current Time in HH.MMSSdd, 24-hour format.
DATE(d1:n) : The date "n" days after or before the date d1.
DDAYS(d1:d2:cal) : Number of days from date "d1" to "d2" using calendar "cal". If (cal = 2), uses 365 days/year calendar; if (cal = 3), uses 360-days/year calendar; otherwise uses the actual calendar.
DEG(x) : Convert "x" radians to decimal degrees.

EXP(x) : Natural antilogarithm; e^x.
EXPM1(x) : Calculates e^{x-1}.
FACT(n) : Factorial of a positive integer "n".
FLOW(name:idx) : Returns the value of the flow at index "idx" from the "name" CFLO list.
FP(x) : Fractional part of "x".
FV(N:I%YR:PV:PMT:P/YR:m) : TVM function for future value. $(m \neq 0 \Rightarrow$ BEG mode).
G(x) : Returns (Get) the value of a variable. The variable is local, not appears in the variables list, if it is only used in the L() and G() functions.
HMS(time) : Converts "time" from decimal hours to HH:MMSSdd format.
HRS(time) : Converts "time" from HH.MMSSdd to decimal hours.
IDIV(x:y) : Integer part of the quotient of $x \div y$.
IF(cond:expr$_1$: **expr$_2$)** : Conditional expression. If (cond is true) uses the "expr$_1$"; otherwise uses "expr$_2$".
INT(x) : Greatest integer less than or equal to "x"
INV(x) : Inverse of "x"; $1 / x$.
INORM(x) : Inverse Normal standard cumulative distribution.
ISTUD(x:n) : Inverse t-Student of 'n' degrees of freedom cumulative distribution.
IP(x) : Integer part of "x".

ITEM(name:idx) : Returns the value of the item at index "idx" from the "name" SUM list.
I%YR(N:PV:PMT:FV:P/YR:m) : TVM function for interest rate per year.   (m ≠ 0 => BEG mode).
L(x:expr) : Store the value of "expr" in the variable "x". The variable is local, not appears in the variables list, if it is only used in the L() and G() functions.
LN(x) : Natural (base-e) logarithm of "x".
LNP1(x) : Natural logarithm of (1+x).
LOG2(x) : Base 2 logarithm of "x".
LOG(x) : Common (base-10) logarithm of "x".
MAX(x:y) : Compares "x" and "y", and returns the larger of the two.
MIN(x:y) : Compares "x" and "y", and returns the smaller of the two.
MOD(x:y) : Remainder of the division x / y.
N(I%/YR:PV:PMT:FV:P/YR:m) : TVM function for number of periods.   (m ≠ 0 => BEG mode).
NORM(x) : Normal standard lower-tail probability of 'x'.
NOT(logical) : Logical operation NOT
PERM(x:y) : Number of permutations of "x" items taken "y" at a time.

PMT(N:I%/YR:PV:FV:P/YR:m) : TVM function for periodic payment. (m ≠ 0 => BEG mode).
PV(N:I%/YR:PMT:FV:P/YR:m) : TVM function for present value. (m ≠ 0 => BEG mode).
RAD(x) : Convert "x" decimal degrees to radians.
RADIUS(x:y) : Magnitude polar coordinate "r" for an (x.y) rectangular coordinate.
RAN#: Pseudo-Random number (0 ≤ r < 1).
RND(x:y) : Round "x" to "y" decimal places.
S(variable name) : Returns "TRUE" if the current variable solved is ""variable name".
SGN(x) : Sign of "x"; returns +1 if x > 0, 0 if x = 0 or -1 if x < 0.
SIN(x) : Sine of "x" in the current angle mode.
SINH(x) : Hyperbolic Sine of "x".
SIZEC(name) : Returns the value of the last entry index from the list specified by "name".
SIZES(name) : Returns the number of entries in the list specified by "name".
SPFV(i%:n) : Future value of a single \$1.0 payment; $(1+i\%/100)^n$.
SPPV(i%:n) : Present Value of a single \$1.0 payment; $1 / (1+i\%/100)^n$.
SQ(x) : Square of "x"; x^2.
SQRT(x) : Square root of "x"; $\sqrt{x}$

| |
|---|
| **STUD(x:n)** : t-Student of 'n' degrees of freedom lower-tail probability of 'x'. |
| **#T(name:idx)** : Returns the value of the frequency at index "idx" from the list specified by "name". |
| **TAN(x)** : Tangent of "x" in the current angle mode. |
| **TANH(x)** : Hyperbolic Tangent of "x". |
| **TRN(x:y)** : Truncates "x" to "y" decimals. |
| **USFV(i%:n)** : Future Value of a uniform series of $1.0 payments. |
| **USPV(i%:n)** : Present Value of a uniform series of $1.0 payments. |
| **XCOORD(r:ø)** : "x" rectangular coordinate for (r,ø) polar coord. "ø" is taken in the current angular mode. |
| **YCOORD(r:ø)** : "y" rectangular coordinate for (r,ø) polar coord. "ø" is taken in the current angular mode. |
| **∑(ctr:c$_1$:c$_2$:s:expr)** : Sum values of algebraic expression "expr" for values of the counter "ctr" from c$_1$ to c$_2$ with increments of step "s". |

Example: Carpet Cost

A carpet cost $22.50 per square yard (PPSY). Calculate the cost of a carpet needed to cover a 9 feet (L) by 12 feet (W) room.

The Formula is: **COST = PPSY · L · W ÷ 9**

Solution: First, show the Solver menu touching the "**SOLVE**" key in the main menu. Then follow the next sequence :

Keystrokes	Description
[NEW]	Shows and empty Equation Editor ready to enter the example.
type [C][O][S][T] **[=]** [P][P][S][Y] **[x]** [L] **[x]** [W] **[÷]** **[9]**	Type the equation using the keyboard.
[Done]	Touch the "Done" button to check the expression. If the expression has no errors, the variable ordering view is shown.
[Save]	Sort the variables in the order you want and touch "Save" to name the equation.
Name the equation "Help Example" & touch "Save"	Enter the name of the equation and save to display the equation variables list.

Now, select the just created "Help Example" equation and touch the "**CALC**" key to show the calculation menu:

Back Help Example:COST=PPSYxLxW...

L +9.00	W +12.00
PPSY +25.00	COST +300.00
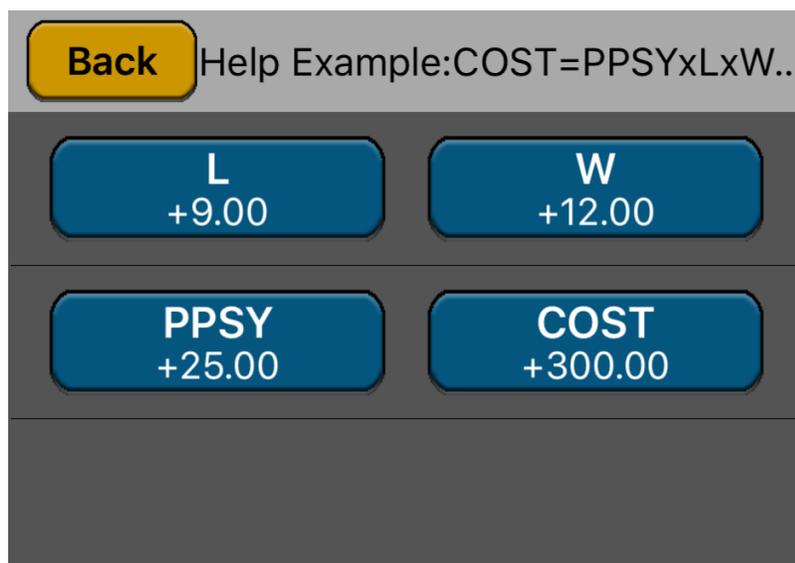
22.5 **[PPSY]**	Stores the PPSY value.
9 **[L]**	Stores the L value.
12 **[W]**	Stores the W value.
[COST]	Calculates the cost. **COST = 270.00**

if you can't pay more than $300.00 to carpet the room. What is the most expensive carpet you can buy?

300 **[COST]**	Stores the maximum COST value.
[PPSY]	Calculates the maximum price. **PPSY = 25.00**
[Back]	Close the equation solver and get back to equation listing.