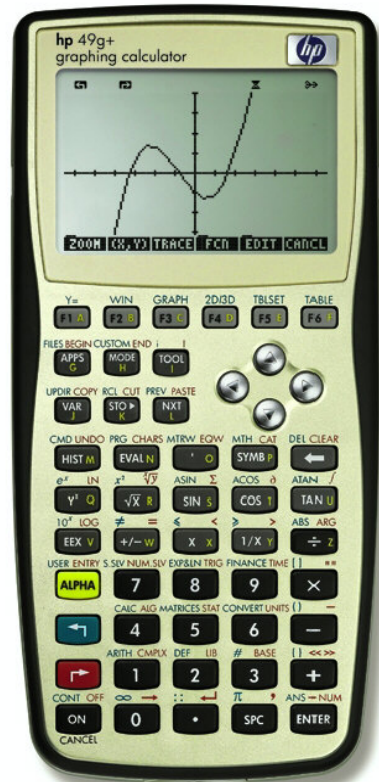


HP 49G+ Remaining Loan Balance

## The FINANCE menu

### Remaining Balances

Practice solving loan remaining balance problems



## The FINANCE menu

The Finance solver is accessed from the GREEN shifted function of the  $\boxed{9}$  key by pressing  $\boxed{\leftarrow}$  **FINANCE**. When pressed, a data entry form is displayed that is used to solve a number of financial math problems.

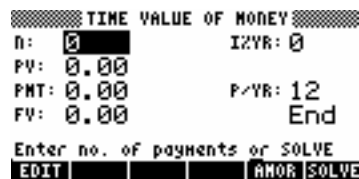


Figure 1

To solve problems using this display, move the cursor using the  $\boxed{\leftarrow}$ ,  $\boxed{\downarrow}$ ,  $\boxed{\uparrow}$ ,  $\boxed{\rightarrow}$  keys to each field and input its value, if known. To solve for the unknown value, move the cursor to the field for which you wish to solve, and press the  $\boxed{F6}$  key to register the choice of **SOLVE**, which is displayed above it. The value of the unknown will be calculated and displayed in the field. The solved value of the variable will be copied to the first level of the command stack in case further calculations with it are desired.

Variables will also be created whenever a value is stored in one of the financial fields or when it has been solved. These variables (N for example holds the value for n) can be seen in the  $\boxed{VAR}$  menu. When they are no longer needed, they can be deleted just like any other user-created variables. Values from a previous use of the financial solver remain until the variables holding them are deleted.

Several values are already present on this screen. The number of payments per year is set to 12 for monthly compounding, as shown to the right of the P/YR: in the screen above. If annual compounding is desired, this value should be changed to 1. If quarterly compounding is desired, this value should be changed to 4. Just below the P/YR: field, the calculator displays the word END, signifying that payments are assumed to occur at the end of each period, which would be the case for ordinary annuities. If payments are desired at the beginning of the period, as would be the case in an annuity due, this value can be changed by moving the cursor to this field. When the cursor is on this field, **CHOOSE** is displayed above the  $\boxed{F2}$  key, indicating the calculator will supply a list of choices (Begin or End) in a small CHOOSE box if this key is pressed. Note that Begin will be displayed as Beg if chosen. To exit from this data entry screen, press the  $\boxed{ON}$  key.

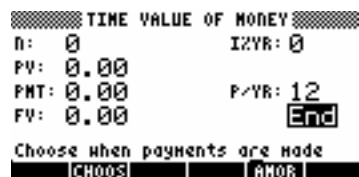


Figure 2

The HP 49G+ Financial solver follows the standard convention that money in is considered positive and money out is negative.

## Remaining Loan Balance

Once a loan payment has been determined, the financial solver can be used to determine the remaining balance. Since each payment has a portion that pays interest due and a portion that reduces the outstanding loan balance, the computed Future Value (FV) at any point in the life of the loan will be the amount remaining to be paid on the loan balance.

## Practice solving remaining loan balance problems

**Example 1:** Ralph bought a car for \$18,995. He will pay for the car with a 4.5%, compounded monthly loan that will have 48 payments. After he has made 12 payments, how much does he still owe on the loan?

**Solution:**  $\boxed{\leftarrow}$  **FINANCE**  $\boxed{4}$   $\boxed{8}$   $\boxed{ENTER}$   $\boxed{4}$   $\boxed{\cdot}$   $\boxed{5}$   $\boxed{ENTER}$   $\boxed{1}$   $\boxed{8}$   $\boxed{9}$   $\boxed{9}$   $\boxed{5}$   $\boxed{ENTER}$   $\boxed{0}$   $\boxed{ENTER}$   $\boxed{1}$   $\boxed{2}$   $\boxed{ENTER}$   $\boxed{0}$   $\boxed{ENTER}$   $\boxed{\leftarrow}$   $\boxed{\uparrow}$  **SOLVE** (Ralph's monthly payment of \$433.15 is displayed).

```

TIME VALUE OF MONEY
n: 48      I/YR: 4.5
PV: 18995.00
PMT: -433.15  P/YR: 12
FV: 0.00      End
Enter payment amount or SOLVE
EDIT      AMOR SOLVE

```

Figure 3

Then press  $\Delta \Delta \frac{1}{2}$  ENTER  $\triangleright \nabla \nabla$  SOLVE

```

TIME VALUE OF MONEY
n: 12      I/YR: 4.5
PV: 18995.00
PMT: -433.15  P/YR: 12
FV: -14561.24 End
Enter future value or SOLVE
EDIT      AMOR SOLVE

```

Figure 4

Answer: After making 12 payments, Ralph still owes \$14,561.24 on his loan.

Example 2: Julie bought a house for \$255,000 and is paying for it with a 30-year loan with an interest rate of 5.5%, compounded monthly. After she has made 72 payments, how much does she still owe on the loan?

Solution:  $\leftarrow$  FINANCE 3 6 0 ENTER 5 . 5 ENTER 2 5 5 0 0 0 ENTER 0 ENTER 1 2 ENTER 0 ENTER  $\triangleleft \Delta$  SOLVE (Julie's monthly payment of \$1,447.86 is displayed).

```

TIME VALUE OF MONEY
n: 360     I/YR: 5.5
PV: 255000.00
PMT: -1447.86 P/YR: 12
FV: 0.00      End
Enter payment amount or SOLVE
EDIT      AMOR SOLVE

```

Figure 5

Then press  $\Delta \Delta 7 2$  ENTER  $\triangleright \nabla \nabla$  SOLVE

```

TIME VALUE OF MONEY
n: 72      I/YR: 5.5
PV: 255000.00
PMT: -1447.86 P/YR: 12
FV: -231254.99 End
Enter future value or SOLVE
EDIT      AMOR SOLVE

```

Figure 6

Answer: After making 72 payments, Julie still owes \$231,254.99 on her loan.

Example 3: Howard bought a house for \$163,000 and is paying for it with a 15-year loan at 5.25%, compounded monthly. After he has made payments for 10 years, how much does he still owe on the loan?

Solution:  $\leftarrow$  FINANCE 1 8 0 ENTER 5 . 2 5 ENTER 1 6 3 0 0 0 ENTER 0 ENTER 1 2 ENTER 0 ENTER  $\triangleleft \Delta$  SOLVE (Howard's monthly payment of \$1,310.32 is displayed).

```

TIME VALUE OF MONEY
n: 180     I/YR: 5.25
PV: 163000.00
PMT: -1310.32 P/YR: 12
FV: 0.00      End
Enter payment amount or SOLVE
EDIT      AMOR SOLVE

```

Figure 7

Then press  $\Delta \Delta 1 2 0$  ENTER  $\triangleright \nabla \nabla$  SOLVE

```
TIME VALUE OF MONEY
n: 120      I/YR: 5.25
PV: 163000.00
PMT: -1310.32  P/YR: 12
FV: -69015.16 End
Enter future value or SOLVE
EDIT AMOR SOLVE
```

Figure 8

Answer: After making 120 payments, Howard still owes \$69,015.16 on his loan.