



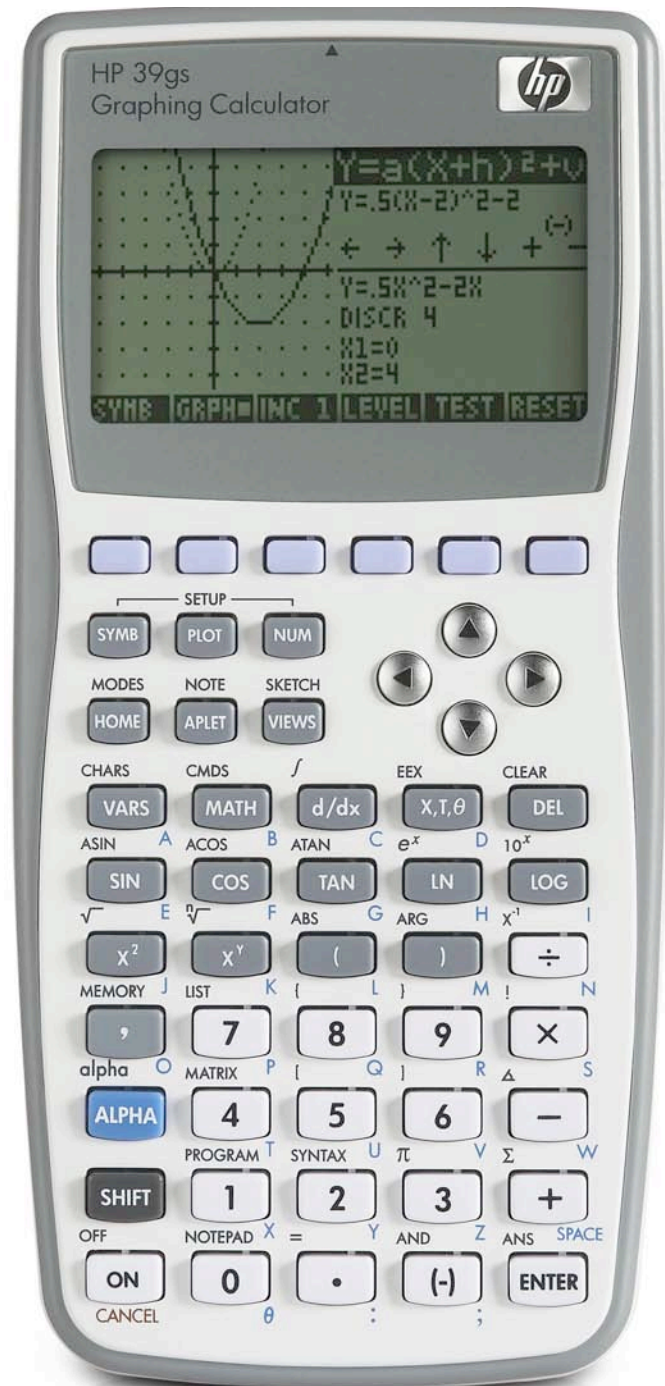
hp calculators

HP 39gs Loan Down Payments

The FINANCE aplet

Loan down payments

Practice solving loan down payment problems



The FINANCE aplet

The HP 39gs has a financial solver aplet built into the calculator. To access this aplet, press $\boxed{\text{APLET}}$. Scroll down the list using the \downarrow key until "Finance" is highlighted in the display as shown below.



Figure 1

Press $\boxed{\text{ENTER}}$ to begin the aplet. A data entry form is then displayed that is used to solve a number of financial math problems.

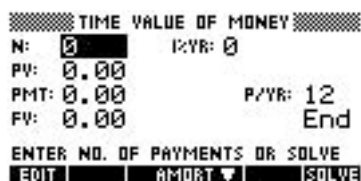


Figure 2

To solve problems using this display, move the cursor using the \leftarrow \uparrow \downarrow \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 menu key labeled $\boxed{\text{MENU}}$. The value of the unknown will be calculated and displayed in the field. Note: If you enter the aplet and values are already present in some of the fields, you can clear these values to their default state by pressing the $\boxed{\text{SHIFT}}$ key and then $\boxed{\text{DEL}}$, to access the CLEAR function written above it.

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, $\boxed{\text{MENU}}$ is displayed above the second menu 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 a key that starts another function.



Figure 3

The HP 39gs Financial solver follows the standard convention that money in is considered positive and money out is negative.

Loan down payments

Down payments are often made on loans to lower the required payment. Other reasons for down payments can be to ensure the loan applicant has an equity interest in the loan collateral, which would make the loan applicant less likely to abandon the property, since the property would be worth more than the loan balance. Down payments are also required to ensure an investment in the property has been made by the loan applicant, thereby reducing the risk to the lender that the loan will be abandoned.

The process to be used is to input the payment the applicant can afford and determine the equivalent Present Value (PV). The difference between this PV and the actual loan amount will indicate the down payment necessary to achieve the required payment.

Practice solving loan down payment problems

Example 1: Tommy wants to buy a car and can afford a payment of \$400 a month. If the car costs \$25,000 and Tommy can get a 72 month loan at 6.9%, compounded monthly, how much must Tommy give as a down payment to lower his payment to \$400 a month?

Solution:  (press  until the "Finance" aplet is highlighted) 
                      

```

TIME VALUE OF MONEY
N: 72      I%YR: 6.9
PV: 23527.99
PMT: -400.00  P/YR: 12
FV: 0.00      End
Enter present value or SOLVE
EDIT  AMORT  SOLVE

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Figure 3

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




















TIME VALUE OF MONEY
N: 72      I%YR: 6.9
PV: -1,472.01
PMT: -400.00  P/YR: 12
FV: 0.00      End
ENTER PAYMENT AMOUNT OR SOLVE
EDIT  AMORT  SOLVE

```

Figure 4

Answer: To lower his monthly payment to \$400, Tommy needs to make a \$1,472.01 down payment.

Example 2: Jane is looking to buy a house and can afford a payment of \$1,200 a month. If the house costs \$270,000 and Jane can get a 30 year loan at 5.4%, compounded monthly, how much must Jane give as a down payment to lower her payment to \$1,400 a month?










Solution:  (press  until the "Finance" aplet is highlighted) 
                        

```

TIME VALUE OF MONEY
N: 360     I%YR: 5.4
PV: 249318.47
PMT: -1400.00  P/YR: 12
FV: 0.00      End
Enter present value or SOLVE
EDIT  AMORT  SOLVE

```

Figure 5

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TIME VALUE OF MONEY
N: 360     I%YR: 5.4
PV: -20,681.53
PMT: -1,400.00  P/YR: 12
FV: 0.00      End
ENTER PAYMENT AMOUNT OR SOLVE
EDIT  AMORT  SOLVE

```

Figure 6

Answer: To lower her monthly payment to \$1,400, Jane needs to make a \$20,681.53 down payment.