

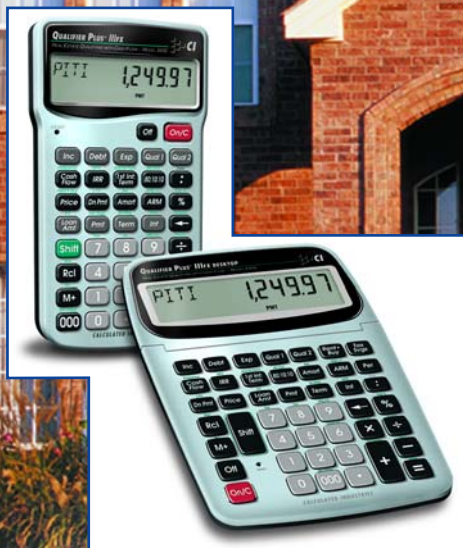
QUALIFIER PLUS® IIIFX

ADVANCED RESIDENTIAL REAL ESTATE FINANCE CALCULATOR
with CASH FLOW and COMPLETE BUYER QUALIFYING

Model 3430 • Qualifier Plus® IIIFX

Model 43430 • Qualifier Plus® IIIFX Desktop

User's Guide



**CALCULATED
INDUSTRIES®**

Putting answers at your fingertips since 1978

Introducing the QUALIFIER PLUS® IIIFX Mortgage Loan Calculator

The new *QUALIFIER PLUS IIIFX* was custom-designed for mortgage lenders and residential real estate pro's. With the push of a few buttons, it will quickly pre-qualify prospective buyers and solve hundreds of mortgage loan problems! It also operates as an easy-to-use financial calculator, with user-friendly cash flow keys for analyzing real estate investments, and TVM keys to analyze retirement/savings scenarios. It's *the* most *complete* and *easy-to-use* real estate and finance calculator on the market!

Features:

- Easy and Complete Buyer Qualifying
- Find Qualifying Loan Amount, Income Required and Maximum Allowable Debt
- Use Two Qualifying Ratios at Once to Compare Different Loans (e.g., conventional vs. FHA/VA loans)
- Find the Restricted and Unrestricted Qualifying Loan Amount
- Instant P&I, PITI and Total Payment
- Interest-Only Payment
- Expanded Tax and Insurance Capabilities
- Built-in Sales Price and Down Payment
- Works in Annual Term and Interest
- Flexible, "what-if" Loan or TVM Calculations — *Finds Loan Amount, Term, Interest or Payment*
- Future Value and Appreciation
- Complete Amortization
- Remaining Balances/Balloon Payments
- Adjustable Rate Mortgages (ARMs)
- APR and Total Finance Charges
- Bi-Weekly Loans
- Trust Deeds (investments)
- Date Math
- Also Works as a Standard Math Calculator

New!

- 1st and 2nd Trust Deeds (80:10:10/80:15:5), or Combo Loans
- APR, including Mortgage Insurance
- Beginning/End Mode
- Cash Flows/Investment Analysis (IRR, NPV, NFV)
- Income Tax Savings, Mortgage Interest Deduction
- Interest-Only Payments
- Loan-to-Value (LTV)
- Odd-Days Interest (ODI) & Month Offset
- Rent vs. Buy
- Retirement Savings

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KEY DEFINITIONS

Basic Operation Keys

- Off** Turns all power off. The Memory and most financial registers are cleared.
- On/C** If off, turns power on. If on, a single press clears the last entry while a second press in succession clears all non-permanent registers.*
- *Clears Loan Amount, Payment, Price, Down Payment, Income, Debt, Expense, and Mortgage Insurance/MI (unless MI is set to hold; see Preference Settings).*
- + - × ÷ =** Arithmetic operation keys.
- 0 - 9** Digits used for keying in numbers.
- 000** Triple-zero key (saves time when entering 000 values).
- ←** Backspace key (deletes entries one digit at a time).
- .** Decimal point.
- %** **Percent** — Four-function (+, −, ×, ÷) percent key. See **page 18** for examples.
- M+** **Memory** — Adds the displayed number to the cumulative Memory. Pressing **Shift M+** (M−) will subtract the displayed value from Memory. Pressing **Rcl M+** recalls and displays the Memory contents. Pressing **Rcl Rcl** displays and clears the Memory. See **page 24** for details.
- Rcl** **Recall** — Recalls and displays the stored values in most keys/functions, such as the TVM keys, payments per year, etc. (e.g., **Rcl Int**). Also used for Memory functions.
- Shift** Works with other keys to set or activate second functions (it will perform the function printed above the key on the calculator's face). Also used to set the number of displayed decimal places (see Decimal Place Selection on **page 21**).

Shift **=**

Change Sign (+/-) — Changes the sign of the displayed value from positive to negative or vice versa.

Shift **X**

Clear All — Clears all entered values and returns any stored values to their default settings. Use this only with caution, as it will reset ratios, periods per year, etc. back to their defaults (see Appendix on **page 81** for a list of these settings).

*Note: Clear All will not affect any changes made to Preference Settings (with the exception of Payments/Year and Decimal Places, which are returned to their defaults), unless you perform a Reset (see **page 81**).*

Shift **=**

Preferences (Prefs) — Activates the Preference Mode, where you can select custom settings (see **page 22**).

Mortgage Loan (TVM) Keys

The following keys let you solve Time-Value-of-Money (TVM) problems, such as finding a loan payment, term, interest or future value, amortization or Bi-Weekly loans. Other useful keys, such as Price and Down Payment, are also included. These mortgage loan keys let you easily demonstrate various “what-if” loan scenarios to your clients.

**Loan
Amt**

Loan Amount — Enters or solves for the initial loan amount or present value of a financial problem.

Pmt

P&I, PITI Payment, Total Payment, Interest-Only Payment — Enters or solves for the periodic principal and interest (P&I) payment. Pressing **Pmt** a second time in succession calculates the PITI payment (P&I plus property tax, property insurance and mortgage insurance, if entered). The third press of **Pmt** computes the total payment (PITI plus any entered expenses, such as homeowner’s association dues and other housing expenses). The fourth press calculates the interest-only payment.

Term

Enters or solves for the number of years. Second press displays the number of periods. You may enter a periodic term, if you prefer, by pressing the **Shift** **←** (*Periodic*) keys (e.g., **3** **6** **0** **Shift** **←** **Term** instead of **3** **0** **Term**). An entered term greater than 45 will be classified as periodic, not annual.

*Note: Stored permanently, until you change it or perform a Clear All (**Shift** **X**).*

Int

Interest — Enters or solves for the annual interest rate. Second press gives the periodic rate.

Note: Stored permanently, until you change it.

Shift **Loan Amt**

Future Value (FV) — Enters or solves for the future value of a financial problem.

Price

Sales Price — Enters or calculates Sales Price based on the entries of Loan Amount (or equivalent mortgage components) and Down Payment.

Dn Pmt

Down Payment — Enters (in either percent or dollars) or calculates Down Payment, based on the entries of Loan Amount (or equivalent mortgage components) and Sales Price. A second press changes the entered down payment from a dollar figure to a percent, or vice versa.

Note: Any number under 100 is assumed to be a percent down payment. You do not have to label the value as a percent

Shift **Dn Pmt**

Loan-to-Value (LTV) — Calculates the loan-to-value percent when a Down Payment and Sales Price, Loan Amount and Down Payment, or Loan Amount and Sales Price are entered. Also calculates the above dollar values if an LTV percent and one of the above values are entered (e.g., entered Sales Price and LTV percent will calculate Down Payment and Loan Amount).

Shift **Int**

Annual Percentage Rate (APR) — Calculates APR (for fixed-rate loans only) based on the entry of points and/or non-recurring loan fees paid at initiation. It also calculates total finance charges, monthly mortgage insurance, and PIMI payment, based on the entry of mortgage insurance via the **Shift** **9** keys.

Shift **←**

Periodic — Used to specify a mortgage component (Term or Interest), Income, or Amortization/Remaining Balance value as *per period* rather than *per year*. For example, **3 6 0 Shift ← Term** enters 360 periods, or months.

Shift **÷**

Payments per Year (Pmt/Yr) — Used to set the number of payment periods per year. Default value is 12, for monthly.

Note: You can store the number of payments/year permanently or semi-permanently. See Preference Settings on **page 22**).

Amort

Amortization (Amort) — Finds total interest, principal, remaining balance, remaining term and estimated mortgage interest tax deduction.

The output of this key is as follows:

Press Display or Calculation

- 1 Displays range of periods
- 2 Calculates total interest for period range
- 3 Displays total principal for range
- 4 Calculates total principal and interest
- 5 Calculates remaining balance
- 6 Calculates remaining term
- 7 Calculates estimated mortgage interest tax deduction for the specified period, based on the default tax bracket of 28%*

*You may enter any tax bracket (e.g., 30%, press **3** **0** **Shift** **+** and recalculate amortization values).

Note: This is only for estimating a mortgage interest tax deduction — it does not include property tax. See Tax Savings Keys for income tax savings including property tax and mortgage interest on **page 11**.

Shift Amort

Remaining Balance (Bal) — Displays the remaining balance when preceded by a single year or range of years (or individual payment or range of payments by using the **Shift** **←** keys). Note that you can also view the remaining balance by continuously pressing the **Amort** key.

:

Colon Separator (Date) — Used as a separator for entering dates, ARM adjustments, qualifying ratios, Combo loan (1st/2nd) interest and terms, and for entering amortization ranges and interest/term adjustments.

Shift 000

Month Offset (Mo Offset) — Used to set the first month of payment if other than January.

Shift :

Odd-Days Interest (ODI) — Calculates the prepaid interest, or simple interest accumulated (based on a 360-day year) during the days before the first loan payment is made using the interest rate stored in the Interest register.

ARM

Adjustable Rate Mortgage — Calculates the payment and re-amortizes a fully or partially amortized Adjustable Rate Mortgage based on the inputs of both an Interest Adjustment and a Term Adjustment, which are entered using the Colon **:** key (**Interest Adjustment** **:** **Term Adjustment**). For example, an ARM which increases 1% every year is entered **1** **:** **1** **ARM**; an ARM which decreases 1% per year is entered **1** **:** **1** **Shift** **ARM**. (ARM rates are stored permanently.)

Shift **%**

Lifetime Interest Cap (Cap%) — Sets the lifetime interest cap for ARMs by entering the maximum interest increase. This is a permanent setting. To clear, set the cap back to zero (**0** **Shift** **%**).

Shift **Term**

Bi-Weekly (Bi-Wkly) — Converts a regular monthly loan to a Bi-Weekly loan, where the buyer may realize significant interest savings. After loan variables are entered, pressing **Shift** **Term** displays the reduction in term. The second press of **Term** shows the total interest savings; third press displays the total interest paid; fourth press displays the total principal; and fifth press displays the total principal and interest paid. Pressing **Pmt** will calculate the Bi-Weekly payment. Pressing **Shift** **Term** again will return and re-calculate to the original term, or pressing **On/C** twice will exit Bi-Weekly Mode.

Shift **+**

Tax Bracket (Tax Brkt%) — Enters a buyer's tax bracket for figuring Rent vs. Buy calculations, for calculating Tax Savings, or for calculating an estimated mortgage interest tax deduction in the Amortization calculation. Press **Rcl** **+** to display stored percentage. (*Default = 28%*)

Tax, Insurance and Expense Keys

In addition to Qualifying, the following keys are also involved in PITI or total payment calculations (e.g., they are added to the monthly payment):

Shift 7

Property Tax (Tax) — Used for calculating PITI and Total payment, and Qualifying. Stores estimated annual property tax in either percent or dollar amount. If entered as an annual dollar amount, pressing **Rcl 7** converts to the monthly tax amount, and pressing **Rcl 7** again converts to the annual percentage rate. If entered as a percentage, pressing **Rcl 7** converts to the annual dollar amount, and pressing **Rcl 7** once more shows the monthly tax.

Note: Entering a number equal to or less than 10 is assumed to be an annual percentage. Property tax is calculated from the sales price (therefore, you should also enter a Down Payment).

Shift 8

Property Insurance (Ins) — Used for calculating PITI and Total payment, and Qualifying. Stores estimated annual property (or homeowner's) insurance in either percent or dollar amount. If entered as an annual dollar amount, pressing **Rcl 8** converts to the monthly insurance amount or premium, and pressing **Rcl 8** again converts to the annual percentage rate. If entered as a percentage, pressing **Rcl 8** converts to the annual dollar amount, and pressing **Rcl 8** once more shows the monthly insurance.

Note: Entering a number equal to or less than 10 is assumed to be an annual percentage. Property insurance is calculated from the sales price (therefore, you should also enter a Down Payment).

Shift 9

Mortgage Insurance (Mtg Ins) — Used for calculating PITI and Total payment, and Qualifying. Stores estimated annual mortgage insurance (or Private Mortgage Insurance) in either percent or dollar amount. If entered as an annual dollar amount, a press of **Rcl 9** converts to the monthly mortgage insurance amount or premium, and pressing **Rcl 9** again converts to the annual percentage rate. If entered as a percentage, pressing **Rcl 9** converts to the annual dollar amount, and pressing **Rcl 9** once more shows the monthly insurance.

(Cont'd)

(Cont'd)

Note: Entering a number equal to or less than 10 is assumed to be an annual percent. Mortgage insurance is calculated from the loan amount.

Note: Tax and Insurance entered as dollar amounts will remain fixed, even if sales price or loan amount is changed. However, if entered as a percent of sales price or loan amount, these items will automatically be re-calculated if sales price or loan amount is changed.

Exp

Expense — Used for calculating Total Payment and Qualifying. Enters monthly housing expense (e.g., homeowner's association dues, maintenance and utilities).

Tax Savings Keys

Shift Pmt

Estimated Income Tax Savings (Tax Svgs) — Calculates an estimated annual income tax savings for a mortgage, based on entered loan variables, including property tax, mortgage interest, and tax bracket. You may use the stored Tax Bracket %, or enter a tax bracket prior to pressing **Shift Pmt Pmt** to display the estimated annual income tax savings; the third consecutive press of **Pmt** will display the monthly tax savings; and the fourth press will display the estimated “after-tax”, or net mortgage payment.

*Note: This function is different from the mortgage interest deduction figured in the Amortization calculation, as it also includes property tax for a total estimated tax savings and only provides an annual estimate, not an estimate for a specified range. (See the **Amort** key definition on **page 8** for details).*

DESKTOP MODEL ONLY:

Tax Svgs

Your calculator has a dedicated Tax Savings key that operates as identified above.

Rent vs. Buy Keys

Shift Price

Rent vs. Buy — Calculates a comparable sales price, loan amount, and mortgage payment versus the cost of monthly rent. You must enter loan variables (and a tax bracket via **Shift +**), then enter the prospective buyer's current rent and press **Shift Price**. Consecutive presses of **Price** will calculate the comparable sales price, loan amount, monthly loan payment (including tax/insurance, if entered), and estimated annual/monthly income tax savings.

DESKTOP MODEL ONLY:

Rent Buy

Your calculator has a dedicated Rent vs. Buy key that operates as identified above.

Qualifying Keys

Qual 1

(Qualify Based on 28%-36%) — A multi-function key which, based on entered variables, performs the following pre-qualifying functions:

1) Stores income and debt ratios for loan qualifying. Ratios are entered using the Colon **:** key (Income Ratio **:** Debt Ratio). For example, income and debt ratios of 28% and 36%, respectively, are entered and permanently stored as follows: **2 8 :** **3 6** **Qual 1**. Default income and debt ratios for this key are 28% and 36%, respectively. You may change qualifying ratios, if desired.

What are Qualifying Ratios?

The income ratio calculates the allowable percent of income for the total housing payment, while the debt ratio finds the allowable percentage of income for the total housing payment, plus long-term debts (usually 12 months or longer). The *conservative* rule is that total housing expenses should be 28% or less of income, while total housing expense plus monthly debt should be 36% or less of income.

INCOME RATIO =

TOTAL HOUSING EXPENSE
GROSS MONTHLY INCOME

(Cont'd)

(Cont'd)

DEBT RATIO =

TOTAL HOUSING EXPENSE + MO. DEBT
GROSS MONTHLY INCOME

Note: Typically, when figuring government loans (FHA/VA), these formulas also include estimated expenses for maintenance and utilities (added to the Total Housing Expense for both ratios). Also, real estate financing and qualifying varies per region and by lender, who of course, take other factors into consideration, such as a buyer's credit and employment history.

2) Calculates the maximum loan amount for which a buyer may qualify, based on the stored income and debt qualifying ratios and the entered:

- term
- interest
- annual income
- monthly debt

—*and optional*—

- annual property tax and insurance
- annual mortgage insurance (Mortgage Insurance or MI)
- other monthly housing expenses (e.g., home-owner's association dues)

The output of this key is as follows:

Press Display or Calculation

- | | |
|---|---|
| 1 | Displays stored Qualifying Ratios (e.g., 28%-36%) |
| 2 | Restricted/Maximum Qualifying Loan Amount * |
| 3 | Buyer's Actual Ratios (Income%:Debt%) |
| 4 | Unrestricted Qualifying Loan Amount * |
| 5 | Maximum Allowable Debt |

(Cont'd)

(Cont'd)

Note: The Maximum Qualifying Loan Amount is the “restricted” loan amount the buyer may qualify for. This loan amount is based on whichever of the two ratios — income or debt — limits the buyer the most. The Unrestricted Qualifying Loan Amount, however, is the **higher loan amount. This loan amount is based on whichever of the two ratios — income or debt — limits the buyer the least. In other words, whichever ratio will give the buyer the highest qualifying loan amount. For this unrestricted loan amount, the calculator will display the letters “UNR” (for unrestricted) in the display and the word “INC” or “DEBT” to indicate what ratio side this loan amount was based from (e.g., income or debt).*

This restricted/unrestricted qualifying loan comparison is useful to show clients what size loan they could qualify for if they paid off debt or increased income.

3) Calculates the annual income required and allowable monthly debt for a desired loan amount or sales price based on the stored income and debt qualifying ratios and the entered:

- term
- interest
- price (down payment) or loan amount

4) Also finds buyer's actual income and debt ratios given both buyer and property data. By default, the first press of **Qual 1** displays the stored qualifying ratios and the second press calculates the buyer's actual ratios.

Qual 2

(Qualify Based on 29%-41%) — Stores additional Income and Debt ratios (e.g., FHA/VA) and operates identically to the **Qual 1** key. Default Income and Debt ratios for this key are 29% and 41%, respectively.

*Note: You can store whatever ratios you desire in the **Qual 1** or **Qual 2** keys.*

Inc

Income — Enters the buyer's *annual* income for loan qualifying. Enters a *monthly* income when preceded by the **Shift** key (e.g., **5 0 0 0 Shift Inc**).

Debt

Enters buyer's long-term, *monthly* debt (e.g., car payments, credit cards with large balances/long-term monthly payments).

1st & 2nd Trust Deeds (Combo Loan) Keys

The Combo Loan keys show the savings of obtaining a 1st and 2nd trust deed (TD) loan over a single, fixed-rate loan where mortgage insurance, or private mortgage insurance (MI), is required.

This routine requires a fixed-rate loan to be entered using the standard **Loan Amt**, **Pmt**, **Int** and/or **Term** keys so that a loan comparison can be made.

80:10:10

Loan-to-Value Combo Loan for 80:10:10 — This key provides a loan comparison (see key outputs below*) of an 80:10:10 combo fixed-rate loan versus a single, fixed-rate loan requiring mortgage insurance. The stored values are a percentage of the sales price (e.g., 80:10 identifies that 80% of the price is covered by the 1st TD, 10% of the price is covered by the 2nd TD and the remaining 10% is covered by the down payment).

Shift 80:10:10

Loan-to-Value Combo Loan for 80:15:5 — The second function of this key provides a loan comparison (see below*) of an 80:15:5 combo fixed-rate loan versus a single fixed-rate loan requiring mortgage insurance. The stored values are a percentage of the sales price (e.g., 80:15 identifies that 80% of the price is covered by the 1st TD, 15% of the price is covered by the 2nd TD and the remaining 5% is covered by the down payment).

Note: You may also enter any LTV for either **80:10:10** or **Shift 80:10:10 (80:15:5) Combo Loans** keys. For example, to enter a 90:5 LTV, enter **9 0 ▸ 5 80:10:10** or **9 0 ▸ 5 Shift 80:10:10** and continue to press the **80:10:10** key to find the below values.

***80:10:10** and **Shift 80:10:10 (80:15:5) Key Output:**

For a comparison of a fixed-rate combo loan versus a fixed-rate loan with required mortgage insurance, each key press (once all other loan values are entered, including 1st:2nd Interest:Term) will calculate:

(Cont'd)

(Cont'd)

Press Display or Calculation

- | | |
|----|---|
| 1 | Combo Loan Combined (Blended) Interest Rate |
| 2 | Equivalent Interest Rate of Fixed Rate Mortgage with Mortgage Insurance |
| 3 | Combo Loan Combined (1st/2nd TD) Payment |
| 4 | Equivalent Payment of Fixed Rate Mortgage with Mortgage Insurance |
| 5 | Monthly Savings over Fixed-Rate Loan with Mortgage Insurance |
| 6 | Adjusted 2nd Term (if Savings Applied to 2nd TD) |
| 7 | 1st Trust Deed Loan Amount |
| 8 | 2nd Trust Deed Loan Amount |
| 9 | 1st Trust Deed Payment |
| 10 | 2nd Trust Deed Payment |
| 11 | Displays LTV |

1st Int:Term

1st TD Interest:Term — Stores the annual interest and term for the 1st fixed-rate TD. These values are used when computing the 1st:2nd fixed Combo Loan. Entry is made using the **Ⓜ** key (**Interest Ⓜ Term**). Both interest and term values are required for a valid entry. Values will be retained until changed or reset.

Shift 1st Int:Term

2nd TD Interest:Term — Stores the annual interest and term for the 2nd fixed-rate TD. Entry is made using the **Ⓜ** key (**Interest Ⓜ Term**). Both interest and term values are required for a valid entry. Values will be retained until changed or reset.

Cash Flow Keys

The following keys provide quick and easy analysis of cash flow investment scenarios without all the confusing keys or keystrokes of typical financial calculators:

Cash Flow

This key allows the entry of up to 20 cash flows (either positive or negative; use the **Shift** **⊖** keys to label a cash flow as a negative value, or cash outlay).

Shift **Cash Flow**

Frequency (Freq) — The second function of this key labels a cash flow that is repeated consecutively, or grouped (e.g., if a cash flow is repeated three times in a row, first enter the cash flow value into the **Cash Flow** key, then enter the frequency, or number of occurrences (**3** **Shift** **Cash Flow**).

Note: to use the Frequency function, a cash flow must repeat itself **consecutively**. If it occurs more than once out of order, or is not consecutive, you must enter it separately, just like other cash flows (do not use the Frequency function).

IRR

Internal Rate of Return — This multi-function key calculates, upon consecutive presses:

Press **Display or Calculation**

- | | |
|---|---|
| 1 | IRR%* |
| 2 | Net Present Value (NPV)** |
| 3 | Net Future Value (NFV) |
| 4 | Desired Interest Rate (entered prior to calculating, or stored in Int key) |

***IRR**: The rate of return at which the discounted future cash flows equal the initial cash outlay (C-0). An IRR greater than the desired rate of return is financially attractive (the higher, the better).

****NPV**: Another tool to analyze cash flow scenarios. A positive NPV indicates that an investment is attractive (again, the higher, the better).

NPV is computed by adding the initial investment (C-0), a negative cash outlay, to the present value of the estimated future cash flows.

Note: If there is no initial investment/cash outlay, enter "0" into the first cash flow register (C-0).

Shift **IRR**

NPV/NFV — If you wish to skip the IRR% calculation display (see above), press **Shift** **IRR** to calculate NPV. Second press calculates NFV.

Shift **6**

Clear Cash Flows (Clear CF) — Deletes all cash flows. Use this before you begin a new cash flow example.

BASIC ARITHMETIC EXAMPLES

Arithmetic

This calculator uses standard chaining logic, which simply means that you enter your first value, the operator (+, −, ×, ÷), the second value and then the equals sign (=).

- A. 3 + 2 = 5.00
B. 3 − 2 = 1.00
C. 3 × 2 = 6.00
D. 3 ÷ 2 = 1.50

Percentage Calculations

The percent % key can be used for finding a given percent of a number or for working add-on, discount, or division percentage calculations.

- A. 800 × 25% = 200.00
B. 250 + 10% = 275.00
C. 25 − 50% = 12.50
D. 200 ÷ 50% = 400.00

The percent % key has special applications for real estate professionals — especially when figuring a commission amount.

Figuring Straight Percent Commission

The commission for the listing office is 3%. If the property sells for \$259,650, what is the listing office's commission?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter sales price	2 5 9 6 5 0	259,650.
Multiply by commission %	× 3 % =	7,789.50

— DO NOT CLEAR CALCULATOR —

What if the listing agent works on a 50/50 split with his or her broker? What is the listing agent's share of this commission?

STEPS	KEYSTROKES	DISPLAY
Multiply by 50%	× 5 0 % =	3,894.75

Reduction in Listing Price (Discount %)

A nervous seller has had her property on the market for just over four months listed at \$175,500. Because she is anxious to move into a new home, she wishes to reduce the listing price by 5%. Calculate both the amount of reduction in dollars and the new, lowered listing price.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter sales price	1 7 5 5 0 0	175,500.
Subtract 5%	- 5 %	8,775.00
Find new listing price	=	166,725.00

Simple 1-Year Home Appreciation (Add-on %)

Properties in your area have been going up in value about 6% per year. If you purchase a \$275,000 home today, what will it be worth in one year, assuming the same rate of appreciation continues?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter current value	2 7 5 000	275,000.
Add 6%	+ 6 %	16,500.00
Find appreciated value	=	291,500.00

Note: See **page 43** for another example of future value or appreciation.

Date Examples

Using the **⌘** key, you can quickly solve common real estate date problems: escrow or closing dates, listing expiration dates, and the number of days prepaid interest, etc. You enter a date as follows: Numerical Month **⌘**, Numerical Day **⌘** and two-digit Numerical Year.

The date function lets you: 1) add a number of days to a date to find a second date (in the future), 2) subtract a number of days from a date to find a second date (in the past), and, 3) subtract one date from another date to find the number of days in between. For example, if a 45-day escrow begins April 26, 2007, what is the closing date and day?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter month	4 ⌘	4-
Enter day	2 6 ⌘	4-26-
Enter year	0 7	4-26-07
Add 45 days	+ 4 5 =	SUN 06-10-07

Find the number of days to calculate prepaid interest due at closing, if the escrow closing date is 10/14/07 and the first payment is due 11/1/07.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter 1st payment date	1 1 ⌘ 1 ⌘ 0 7	11-1-07
Subtract closing date to find number of days	- 1 0 ⌘ 1 4 ⌘ 0 7 =	18.00

CALCULATOR SETTINGS

Decimal Place Selection

With the **Shift** key, you have the option of selecting the number of decimal places you'd like to display. The values are rounded using conventional 5/4 rounding. You can do this prior to finding an answer or afterwards.

Press **Shift** followed by the number of decimal places you wish to display:

Shift 5	0.00000
Shift 4	0.0000
Shift 3	0.000
Shift 2	0.00
Shift 1	0.0
Shift 0	0.
Shift •	floating point

To return to the standard two-decimal place setting, press **Shift** 2.

*Note: This setting will remain until you turn your calculator off, perform a Clear All (**Shift** X), or until you change it using the commands above. You can select to permanently maintain your decimal place selection (remains even after you turn the calculator off) by selecting "Hold Entry" for decimal settings under Preferences on page 22.*

Preference Settings

Your calculator has a Preference Mode, which allows you to program the calculator to various settings. For example, it lets you store certain values permanently, display certain values, or show values in a specific order.

To access the Preference Mode, press **Shift**, then **≡**, then keep pressing **≡** to toggle through the settings listed below. Press the **+** key to advance through the sub-settings. Use the **≡** key to back up within the sub-settings.

To return the calculator to its default, or factory-set Preference Settings, perform a total Reset (see **page 81**).

After **Shift**,

Keep

Pressing

≡: Display

Description

(Press **+** to Advance

within each category, **≡** to Back up):

- | | | |
|---|---|--|
| 1 | <u>Decimal Places</u>
- DEC OFF 0.00 —
- DEC Hold Entry — | Clears decimal place setting/resets to 0.00 at Off . (Default)
Permanently sets number of decimal places. |
| 2 | <u>Payments Per Year</u>
- P/Y OFF 12.00 ANN—
- P/Y Hold Entry ANN— | Resets to 12.00 at Off . (Default)
Permanently sets payments/year. |
| 3 | <u>Property Tax/Insurance (T/I)</u>
- Clr OFF TAX INS —
- Hold Pct. TAX INS —
- Hold All TAX INS —
- Clr-Clr TAX INS — | Clears all T/I (% and \$) entries at Off . (Default)
Holds only T/I <u>percent</u> (%) entries at Off .
Holds all T/I (% and \$) entries at Off .
Clears all T/I (% and \$) entries at double press of On/C (or On/C On/C).
(Cont'd) |

(Cont'd)

After **Shift**,
Keep
Pressing
≡:

Display

Description
(Press **+** to Advance
within each category, **←** to Back up):

4 **Mortgage Insurance (MI)**

- Clr-Clr M Ins — Clears mortgage insurance (% and \$) upon **On/C On/C**. (Default)
- Clr OFF M Ins — Clears mortgage insurance (% and \$) at **Off**.
- HOLD Pct. M Ins — Holds only percent (%) mortgage insurance entry at **Off**.
- HOLD ALL M Ins — Holds (% or \$) mortgage insurance entry at **Off**.

5 **Amortization/Single Entries**

- AMRT Ent-Ent — Displays amortization for specified year only — e.g., enter **5 Amort ←** payments 49-60. (Default)
- AMRT 1-Ent — Displays amortization from beginning to specified year — e.g., enter **5 Amort ←** payments 1-60.

6 **Display Qualifying Ratios**

- Q-R PRESS 1 — Displays ratio at beginning of sequence. (Default)
- Q-R AT END — Displays ratio at end of sequence.

7 **Beginning or End Mode**

- TYP END — End Mode. (Default)
- TYP BEG — Beginning Mode.

MEMORY

Accumulative Memory

Whenever the **M+** key is pressed, the displayed value will be added to cumulative Memory. This value will remain in Memory until cleared or when the calculator is turned off.

Other Memory functions:

FUNCTION	KEYSTROKES
Recall total in Memory	Rcl M+
Display and clear Memory	Rcl Rcl
Subtract displayed value from Memory	Shift M+
Replace Memory with displayed value	Shift Rcl M+

The Memory is semi-permanent; that is, it will only be cleared when you:

- 1) turn off the calculator;
- 2) press **Rcl** **Rcl**; or
- 3) press **Shift** **X** (*Clear All*).

Examples:

STEPS	KEYSTROKES	DISPLAY
Store number into Memory	3 5 5 M+	355.00
Add number to Memory	2 5 5 M+	255.00
Recall total in Memory	Rcl M+	610.00
Subtract from Memory	7 4 5 Shift M+	745.00
Recall total in Memory	Rcl M+	-135.00
Replace Memory	5 0 Shift Rcl M+	50.00
Recall and clear Memory	Rcl Rcl	50.00

Memory Storage Keys (M0-M5)

In addition to the standard cumulative Memory (as described above), your calculator has six independent Storage Registers — M0 through M5 — that can be used to permanently store single, non-cumulative values. These values will be held when your calculator is turned off, and will only clear when a “Clear All” is performed (via **Shift** **☒**).

You can replace a value in one of these Memory registers by storing a new value in place of the stored value.

FUNCTION	KEYSTROKES
Store single value in M0	Shift Rcl 0
Store single value in M1	Shift Rcl 1
Store single value in M2-M5	Shift Rcl 2 , 3 , 4 or 5
Clear register (e.g., M1)	0 Shift Rcl 1
Review stored value (e.g., M1)	Rcl 1
Clear stored value*	Shift ☒

*Perform a **Shift** **☒** (Clear All) with caution, as it will clear any stored values from your calculator's registers.

Example:

Store 175 into M1, recall the value, and then store a new value in place of the first stored value:

STEPS	KEYSTROKES	DISPLAY
Store value in M1	1 7 5 Shift Rcl 1	M-1 175.00
Turn off, and then turn on	Off On/C	0.00
Recall value stored in M1	Rcl 1	M-1 175.00
Replace stored value with new value	1 5 0 Shift Rcl 1	M-1 150.00

Additional Memory Storage Keys (M10-M19)

In addition to M0-M5 (as described previously), your calculator has ten additional independent Storage Registers — M10 through M19 — that can also be used to permanently store single, non-cumulative values. To access these Storage Registers, use the following key-strokes: **Shift** **Rcl** **◻** (**#**), with (**#**) being digits **0** - **9**. These Storage Registers operate identically to M0-M5.

Examples:

Store 250 into M10 and recall the value:

STEPS	KEYSTROKES	DISPLAY
Store value in M10	2 5 0 Shift Rcl ◻ 0	M-10 250.00
Turn off, and then turn on	Off On/C	0.00
Recall value stored in M10	Rcl ◻ 0	M-10 250.00

Store 350 into M11 and recall the value:

STEPS	KEYSTROKES	DISPLAY
Store value in M11	3 5 0 Shift Rcl ◻ 1	M-11 350.00
Turn off, and then turn on	Off On/C	0.00
Recall value stored in M11	Rcl ◻ 1	M-11 350.00

Note: Repeat the above procedure for registers M12-M19, using digits **2** - **9**.

Note: To clear all above values stored in Memory, press **Shift** **X**.

EXAMPLES

MORTGAGE LOANS/TIME-VALUE-OF-MONEY (TVM)

1. The basic loan keys — **Loan Amt**, **Pmt**, **Term** and **Int** — work just like you would say them. For example, if you want to borrow \$100,000 for 30 years at 10% interest, just enter those three known variables and press the key for the *unknown* fourth variable: **Pmt**.
2. When calculating future value problems, enter the present value into the **Loan Amt** key.
3. Financial values may be entered in any order you want.
4. Entered values for Term and Interest are permanently stored (they do not clear when the calculator is turned off).
5. The calculator's default setting is 12 payments per year, for monthly loans.
6. It is good practice to press **On/C** twice after completing a financial problem to ensure that you have cleared the previous **Loan Amt** and **Pmt** registers.
7. When solving for a financial component, the calculator may display the word "run" in the display. Solving for interest may take several seconds (up to 15) while the word "run" displays.
8. Once you have calculated an answer, for example, a payment, you can go back and change any financial variable and recalculate your new answer *without* re-entering all of the other data. This is handy for demonstrating various "what-if" loan problems.
9. Successive presses of the **Pmt** key will calculate:
 - 1) the principal and interest (P&I) payment;
 - 2) the PITI payment, which includes property tax, property insurance and mortgage insurance, if entered;
 - 3) the total payment (PITI plus any entered housing expenses);
and
 - 4) the interest-only payment.

Finding the Monthly Mortgage (P&I) Payment

Find the monthly P&I (principal and interest) payment on a 30-year, fixed-rate mortgage of \$265,000 at 6.75% annual interest.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	2 6 5 000 Loan Amt *	265,000.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	6 . 7 5 Int	6.75
Find monthly P&I Payment	Pmt	“run” 1,718.78

*Note: Use the **000** key to save keystrokes.

What is the new payment, if the interest rate is lowered to 6.5%?

STEPS	KEYSTROKES	DISPLAY
Enter new Interest rate	6 . 5 Int	6.50
Find monthly P&I Payment	Pmt	“run” 1,674.98

Finding the Loan Amount

Approximately how much could you borrow if the interest rate was 7.8% on a 30-year loan and you could afford \$1,500 in monthly payments? What if the interest rate was lowered to 7.5%?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter annual Interest rate	7 . 8 Int	7.80
Enter Term in years	3 0 Term	30.00
Enter monthly P&I Payment	1 5 0 0 Pmt	1,500.00
Find Loan Amount	Loan Amt	“run” 208,370.81
Enter new Interest rate	7 . 5 Int	7.50
Find new Loan Amount	Loan Amt	“run” 214,526.44

Finding the Interest Rate

Find the interest rate on a mortgage where the loan amount is \$98,500, the term is 30 years, and the payment is \$1,150 a month.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	9 8 5 0 0 Loan Amt	98,500.00
Enter Term in years	3 0 Term	30.00
Enter monthly P&I Payment	1 1 5 0 Pmt	1,150.00
Find annual Interest rate	Int	“run” 13.78
Find periodic Interest rate	Int	1.15

Finding the Term of a Loan

How long does it take to pay off a loan of \$15,000 at 10% interest if you make payments of \$200 each month?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	1 5 000 Loan Amt	15,000.00
Enter annual Interest rate	1 0 Int	10.00
Enter monthly Payment	2 0 0 Pmt	200.00
Find Term in years	Term	“run” 9.85
Find periodic Term	Term	118.19

Paying Off a Mortgage Early (Making Larger Payments)

How long does it take to pay off a 30-year, fixed-rate mortgage of \$150,000 at 8.5% interest if you add an extra \$200 to the mortgage payment each month?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	1 5 0 000 Loan Amt	150,000.00
Enter annual Interest rate	8 . 5 Int	8.50
Enter Term in years	3 0 Term	30.00
Find monthly P&I Payment	Pmt	“run” 1,153.37
Add additional payment amount	+ 2 0 0 =	1,353.37
Enter as new P&I Payment amount	Pmt	1,353.37
Find reduced loan Term	Term	“run” 18.15

Simple Interest vs. Compound Interest

If you borrow \$5,000 at 6% simple interest, how much will you owe at the end of 5 years?

Note: This is a simple math problem and does not require the use of TVM keys.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Multiply loan amount by interest	5 000 x 6 % =	300.00
Multiply by term	x 5 =	1,500.00
Add original loan amount	+ 5 000 =	6,500.00

If the loan is compounded monthly, what will you owe?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter loan amount	5 000 Loan Amt	5,000.00
Enter term in years	5 Term	5.00
Enter annual interest rate	6 Int	6.00
Find future value	Shift Loan Amt	“run” 6,744.25

Sales Price/Down Payment

One of the unique features of this calculator is its ability to work with not only Loan Amount, but with Sales Price and Down Payment. You can enter two values to find the third (e.g., enter Price and Down Payment to find Loan Amount). You may also enter the Down Payment in both percent or dollar format. For example, to enter 20%, enter 20 and press the **Dn Pmt** key (you do not have to label it as a percent). Or enter \$20,000 (e.g., **2** **0** **000** **Dn Pmt**).

Note: A number under 100 entered as the Down Payment is assumed to be a percentage.

*Note: When using **Price**, **Dn Pmt**, and **Loan Amt** keys, it's recommended that you always enter the two known values (Price and Down Payment), then solve for the third (Loan Amount), before calculating financial values.*

Finding Loan Amount Based on Sales Price and Down Payment

Find both the Down Payment dollar amount and loan amount if the sales price is \$250,000 and you're planning to put 20% down.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter sales price	2 5 0 000 Price	250,000.00
Enter Down Payment %	2 0 Dn Pmt	20.00
Find Down Payment \$	Dn Pmt	50,000.00
Find Loan Amount	Loan Amt	200,000.00

Taxes and Insurance

This calculator has keys that store your estimated local annual Property Tax, Property Insurance, and Mortgage Insurance (if applicable) rates or dollar figures. This allows you to calculate the PITI (Principal, Interest, Tax, and Insurance) payment, in addition to the regular P&I payment. You may also enter monthly expenses, such as home-owner's association dues — these are included in the calculation of the total payment (PITI plus expenses).

By default, the Property Tax and Insurance values are cleared when the calculator is shut off, while the Mortgage Insurance value clears when you press **On/C** twice. However, you may use the Preference Settings (**Shift** **=**) to permanently store, or hold all Tax and Insurance (% and \$) values when the calculator is turned off (see **page 22**).

Note: There's a separate Preference Setting for Mortgage Insurance.

Tax and Insurance can be entered as dollar amounts or percentages. If entered as percentages, the Sales Price or Loan Amount can be changed and Tax and Insurance will be recalculated automatically. If entered as dollar amounts, however, they will need to be re-entered for a change in Sales Price or Loan Amount to be correct. Entering values 10 or less are assumed to be annual percentage rates (you do not need to use the percent key).

IMPORTANT NOTE: *Property Tax and Property Insurance rates are based on the Sales Price (therefore, a Down Payment or Sales Price should be entered). The Mortgage Insurance rate is based on the Loan Amount. If neither Sales Price nor Down Payment has been entered, the Sales Price is defaulted to equal the Loan Amount (basically assuming a 100% loan), in which case the Tax and Insurance rates will be based on the Loan Amount value entered.*

Note: If you are underwriting a loan, many lenders choose to use loan amount instead of price when figuring out Hazard Insurance. In this case, you will need to turn your Hazard Insurance into a dollar amount: $\text{Loan Amount} \times \text{Hazard Insurance Rate} = \text{Hazard Insurance dollar amount}$. By entering a lower amount into Insurance, it will improve the buying power of your client. However, the client will only be covered for the loan amount and not the complete value of the home.

Setting Tax and Insurance Percent Rates

Enter an annual property tax rate of 1.5%, a property insurance rate of 0.25%, and a mortgage insurance rate of 0.50%:

STEPS	KEYSTROKES	DISPLAY
Set property tax rate	1 ▣ 5 Shift 7	1.50
Set insurance rate	▣ 2 5 Shift 8	0.25
Set mortgage insurance rate	▣ 5 Shift 9	0.50

Recalling Tax and Insurance Percent Rates

Recall your stored rates:

STEPS	KEYSTROKES	DISPLAY
Recall tax rate	Rcl 7	1.50
Recall insurance rate	Rcl 8	0.25
Recall mortgage insurance rate	Rcl 9	0.50

Note: To change these values, simply enter new ones. Or, turn the calculator off then on, and the values will be cleared, unless they are programmed to hold under Preference Settings (see **page 22**).

Setting Tax and Insurance Dollar

Enter annual property taxes estimated at \$5,500, property insurance at \$350 and mortgage insurance at \$600:

STEPS	KEYSTROKES	DISPLAY
Set annual taxes	5 5 0 0 Shift 7	5,500.00
Set annual insurance	3 5 0 Shift 8	350.00
Set annual mortgage insurance	6 0 0 Shift 9	600.00

Note: Again, to review stored values, press **Rcl** and the applicable key (e.g., **Rcl** **7**).

Calculating Tax and Insurance Percent or Dollar

If loan variables are entered in addition to tax and insurance percentage rates or dollar values, the respective dollars values or percentage rates can be computed by simply pressing the applicable keys a second time. For example, enter an annual property tax rate of 1.5%, a property insurance rate of 0.25% and a mortgage insurance rate of 0.50%. Then enter a sales price of \$250,000, 10% down, a term of 30 years and an interest rate of 8%. Calculate the loan, payments, and annual tax and insurance *dollar amounts*, or premiums:

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter property Tax rate	1 . 5 Shift 7	1.50
Enter insurance rate	. 2 5 Shift 8	0.25
Enter Mortgage Insurance rate	. 5 Shift 9	0.50
Enter Price	2 5 0 000 Price	250,000.00
Enter Down Payment %	1 0 Dn Pmt	10.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	8 Int	8.00
Find Loan Amount	Loan Amt	225,000.00
Recall property Tax %	Rcl 7	1.50
Calculate property Tax \$	Rcl 7	3,750.00
Recall property insurance %	Rcl 8	0.25
Calculate property insurance \$	Rcl 8	625.00
Recall Mortgage Insurance %	Rcl 9	0.50
Calculate Mortgage Insurance \$	Rcl 9	1,125.00
Find monthly P&I Payment	Pmt	"run" 1,650.97
Find monthly PITI Payment	Pmt	2,109.30

Note: The same procedure can be performed to find the opposite — that is, to find the percentage rates based on entered annual dollar amounts or insurance premiums. Simply enter the tax/insurance dollar amounts and loan variables first, and press **Rcl** and the tax/insurance keys to calculate the percentage rate.

PITI Payment (Tax and Insurance Entered as %)

Find the monthly PITI payment on a 30-year, 6.5% mortgage if the home's selling price is \$325,000 and the down payment is 5%. Annual property taxes are estimated at 1.3%, annual property insurance at 0.25%, and annual mortgage insurance at 0.45%.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	6 . 5 Int	6.50
Enter sales Price	3 2 5 000 Price	325,000.00
Enter Down Payment	5 Dn Pmt	5.00
Enter Tax rate	1 . 3 Shift 7	1.30
Enter property Insurance rate	. 2 5 Shift 8	0.25
Enter Mortgage Ins. rate	. 4 5 Shift 9	0.45
Find Loan Amount	Loan Amt	308,750.00
Find monthly P&I Payment	Pmt	"run" 1,951.51
Find monthly PITI Payment	Pmt	2,487.08

Total Payment (Including Expenses) and Interest-Only Payment

Find the total monthly payment (including principal, interest, tax/insurance and monthly expenses) and the interest-only payment on a 30-year, 6% loan if the home's selling price is \$330,000 and the down payment is 15%. (*Local annual property taxes are estimated at \$5,900, property insurance at \$500, mortgage insurance at \$1,200, and monthly expenses — e.g., homeowner's association dues plus utilities — at \$150.*)

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	6 Int	6.00
Enter sales Price	3 3 0 000 Price	330,000.00
Enter Down Payment %	1 5 Dn Pmt	15.00
Find \$ Down Payment	Dn Pmt	49,500.00
Enter property Tax	5 9 0 0 Shift 7	5,900.00
Enter property Insurance	5 0 0 Shift 8	500.00
Enter Mortgage Insurance	1 2 0 0 Shift 9	1,200.00
Enter monthly Expenses	1 5 0 Exp	150.00
Find Loan Amount	Loan Amt	280,500.00
Find monthly P&I Payment	Pmt	"run" 1,681.74
Find monthly PITI Payment	Pmt	2,315.07
Find monthly total Payment (PITI plus monthly expenses)	Pmt	2,465.07
Find interest-only Payment	Pmt	1,402.50

Amortization and Remaining Balance

The amortization function is quick and simple. It allows you to find total interest, principal, and remaining balance for an entire loan, for an individual payment or individual year, or any range of payments or range of years, for fully or partially amortized loans. It also lets you quickly compute the mortgage interest deduction (as an estimate) for your clients.

Notes on Amortization

1. When you enter a range of payments using the Colon **⌘** key, you can find all three possible outputs — Interest, Principal, and Remaining Balance — without having to re-enter the range each time. Simply keep pressing the **Amort** key to find the values.
2. You can also find Remaining Balance using the **Shift Amort** key by specifying a year or range of years, period or range of periods. For example, to find the remaining balance after the 10th *year*, press **1 0 Shift Amort**; to find the remaining balance after the 10th *period*, press **1 0 Shift ← (Periodic) Shift Amort**.
3. Entered ranges are inclusive, so that a range of 1 to 5 would include both year 1 and year 5.
4. Entering a numerical value or performing a math operation on the keypad will alter the values (including the default settings) for range of payments calculations. It is, therefore, best to specify a range of payments or an individual payment before you calculate any of the above.
5. In some cases, it is the practice to include a final, regular P&I payment with the “balloon payment.” This calculator will not include that in the internal calculation of remaining balance; it will only display the actual principal balance remaining.

(Cont'd)

(Cont'd)

6. If the first payment of a loan begins in a month other than January, you can use the Month Offset function. The default for this setting is 1 (for January). To change the start month from January, enter the month number (e.g., 2 for February), then the **Shift** and **000** keys. This allows you to calculate the correct number of periods in the amortization range. As another example, if the first payment of a loan begins in April, the value stored in the month offset would be 4 (press **4** **Shift** **000**). If requesting amortization values for year 1 (press **1** **Amort**), the amortization of periods 1-9 would be displayed. Year 2 (press **2** **Amort**) would display values for periods 10-21. Turning your calculator off and back on returns the Month Offset to 1 (January).

*Note: If you have changed your Month Offset, be sure to return it to 1 (e.g., **1** **Shift** **000**) before proceeding to the next problem.*

7. A useful new feature is that your calculator will also display an *estimated* Mortgage Interest Tax Deduction at the end of the amortization value list (after remaining balance is displayed), if a tax bracket is also entered via **Shift** **+** (Tax Brkt%).

*Note: If a tax bracket percent is not entered, the calculator will use the default of 28%, displayed upon **Rcl** **+**.*

8. Your calculator automatically advances to the **next** Amortization Range or Period after the initial sequence is complete, upon repeated presses of **Amort**. This saves you from entering the next range or period each time.

Total Principal and Interest for a 30-Year Loan

How much total interest will you pay on a \$300,000 loan at 7.5% interest over 30 years? What is the total principal and interest paid?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	3 0 0 000 Loan Amt	300,000.00
Enter annual Interest rate	7 . 5 Int	7.50
Enter Term in years	3 0 Term	30.00
Find monthly P&I Payment	Pmt	“run” 2,097.64
Find total # of payments	Amort	“run” 1-360
Find total interest paid	Amort	455,151.67
Find total principal paid	Amort	300,000.00
Find total principal/interest	Amort	755,151.67

Balloon Payment/Remaining Balance Needed to Pay Off a Loan

You're looking at a new home with the following financing available: Loan amount \$225,000 at 6.75% amortized over 30 years but due and payable after 10 years. What is the balloon payment (remaining balance) after 10 years?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	2 2 5 000 Loan Amt	225,000.00
Enter annual Interest rate	6 . 7 5 Int	6.75
Enter Term in years	3 0 Term	30.00
Find monthly P&I Payment	Pmt	“run” 1,459.35
Find balloon/remaining balance after 10 years	1 0 Shift Amort	“run” 191,927.25

Amortization List for Individual Year(s) — Using “Next” Feature

How much total interest and principal will you pay on a 30-year, \$90,000 loan at 8% interest during the first year? The second year? Third year, etc.? First, find the monthly P&I payment to “set-up” this loan. The calculator will automatically advance to the next year upon subsequent presses of **Amort**.

*Note: The mortgage interest tax deduction is based on the default tax bracket of 28% unless you have changed it via **Shift +**.*

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	9 0 000 Loan Amt	90,000.00
Enter annual Interest rate	8 Int	8.00
Enter Term in years	3 0 Term	30.00
Find monthly P&I Payment	Pmt	“run” 660.39
Enter Year 1	1 Amort	“run” 1-12
Find total interest in Year 1	Amort	7,172.83
Find total principal in Year 1	Amort	751.83
Find P & I in Year 1	Amort	7,924.66
Find remaining balance (at the end of Year 1)	Amort	89,248.17
Find remaining term	Amort	29.00
Find mortgage interest tax deduction in Year 1	Amort	2,008.39
Display next year (Year 2)	Amort	“run” 13-24
Find total interest in Year 2	Amort	7,110.43
Find total principal in Year 2	Amort	814.23
Find P & I in Year 2	Amort	7,924.66
Find remaining balance (at the end of Year 2)	Amort	88,433.94
Find remaining term	Amort	28.00
Find mortgage interest tax deduction in Year 2	Amort	1,990.92
Display next year (Year 3)	Amort	“run” 25-36

(etc. — sequence repeats for each year)

Amortization List for Individual Year(s) — Using Month Offset

The first payment of a loan begins in May. How much total interest and principal will you pay on a 30-year, \$90,000 loan at 8% interest during the first year? The second year? Third year, etc.? (First find the monthly P&I payment to “set-up” this loan.)

*Note: The mortgage interest tax deduction is based on the default tax bracket of 28% unless you have changed it via **Shift +**. Calculator will automatically advance to the next year upon subsequent presses of **Amort**.*


STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Set Month Offset to May	5 Shift 000	5.00
Enter Loan Amount	9 0 000 Loan Amrt	90,000.00
Enter annual Interest rate	8 Int	8.00
Enter Term in years	3 0 Term	30.00
Find monthly P&I Payment	Pmt	“run” 660.39
Enter Year 1	1 Amort	“run” 1-8
Find total interest in Year 1	Amort	4,788.58
Find total principal in Year 1	Amort	494.53
Find principal/interest in Year 1	Amort	5,283.10*
Find remaining balance (at the end of Year 1)	Amort	89,505.47
Find remaining term	Amort	29.33
Find mortgage interest tax deduction in Year 1	Amort	1,340.80
Display next year (Year 2)	Amort	“run” 9-20
<i>(etc. — sequence repeats for each year)</i>		
Return Month Offset to 1**	1 Shift 000	1.00


**Note: Payments are rounded to the nearest whole cent; therefore, the penny difference.*

***Note: Remember to reset Month Offset to 1. Check this setting by pressing **Rcl 000**.*

Amortization List for Individual Payment(s)

For a \$175,000 loan at 6.85% interest for 30 years, find out how much interest and how much principal you'll pay in the first and second payments.


Note: Use the **Shift**  keys to specify payments (periods).

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	1 7 5 000 Loan Amrt	175,000.00
Enter annual Interest rate	6 . 8 5 Int	6.85
Enter Term in years	3 0 Term	30.00
Find monthly P&I Payment	Pmt	"run" 1,146.70*
Enter Payment #1	1 Shift  Amort**	"run" 1-1
Find interest in Payment #1	Amort	998.96
Find principal in Payment #1	Amort	147.75
Find P & I in Payment #1	Amort	1,146.70
Find remaining balance after Payment #1	Amort	174,852.25
Find remaining term after Payment #1	Amort	29.92
Find mortgage interest deduction in Payment #1	Amort	279.71
Display Payment #2	Amort	"run" 2-2

(etc. — sequence repeats for each payment)

— DO NOT CLEAR CALCULATOR —

For the same loan, find the amount of principal and interest paid in the 36th payment. Also, find the total payment, remaining balance and remaining term.

STEPS	KEYSTROKES	DISPLAY
Enter Payment #36	3 6 Shift  Amort**	"run" 36-36
Find interest in Payment #36	Amort	966.39
Find principal in Payment #36	Amort	180.32
Find P & I in Payment #36	Amort	1,146.70*
Find remaining balance after Payment #36	Amort	169,113.79
Find remaining term after Payment #36	Amort	27.00

**Note:* Payments are rounded to the nearest whole cent; therefore, the penny difference.

***Note:* For desktop model, press **Per** **Amort** to perform this function.

Amortization List for a Range of Payments

For a \$225,000, 30-year loan at 7.4% interest, find how much interest and principal you'll pay in payments 1-9.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	2 2 5 000 Loan Amt	225,000.00
Enter annual Interest rate	7 . 4 Int	7.40
Enter Term in years	3 0 Term	30.00
Find monthly P&I Payment	Pmt	“run” 1,557.85
Enter Payments #1-9	1 . 9 Shift ← Amort*	“run” 1-9
Find interest paid	Amort	12,449.13
Find principal paid	Amort	1,571.56
Total principal and interest	Amort	14,020.69
Find remaining balance	Amort	223,428.44
Find remaining term	Amort	29.25
Find mortgage interest deduction for Payments #1-9	Amort	3,485.76

— DO NOT CLEAR CALCULATOR —

Amortization List for a Range of Years

Using the same values as the previous example, find how much interest and principal you will pay in years 1-10.

STEPS	KEYSTROKES	DISPLAY
Enter Years #1-10	1 . 1 0 Amort	“run” 1-120
Find interest paid	Amort	156,798.68
Find principal paid	Amort	30,143.87
Total principal and interest	Amort	186,942.55
Find remaining balance	Amort	194,856.13
Find remaining term	Amort	20.00
Find mortgage interest deduction for Years #1-10	Amort	43,903.63

*Note: For desktop model, press **Per** **Amort** to perform this function.

Bi-Weekly Loans

Your calculator includes a Bi-Weekly loan function (**Shift Term**) which allows you to convert established, fully amortized monthly loans into Bi-Weeklies (in which one-half the monthly payment is made every two weeks). Because you make two extra half-payments per year (i.e., 26 Bi-Weekly payments is like making 13 payments/year), these kinds of loans can amount to large interest savings and a substantial reduction in the time it takes to pay them off.

You begin solving these problems by setting up the initial monthly loan and then pressing **Shift Term**. The first press of **Term** displays the Bi-Weekly term, the second press shows the total interest savings over the entire loan, a third press calculates the total interest paid, a fourth press shows the total principal paid, and a fifth press shows the total P&I Payments. Press the **Pmt** key to find the Bi-Weekly payment.

Bi-Weekly Term Reduction and Payment

Find the monthly P&I payment on a 30-year, \$275,000 mortgage at 5.88% annual interest. Then convert it to a Bi-Weekly and find out how many years it will take to pay off this loan, the total interest savings, the total interest and principal paid (as a comparison to the regular loan), and the Bi-Weekly payment.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	2 7 5 000 Loan Amt	275,000.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	5 . 8 8 Int	5.88
Find monthly P&I payment	Pmt	“run” 1,627.61
Display amortization period	Amort	1-360
Find total interest paid	Amort	310,938.79
Re-display total principal	Amort	275,000.00
Find total P&I paid	Amort	585,938.79

(Cont'd)

(Cont'd)

Now Solve for the Bi-Weekly Loan and Compare Interest Savings and Total Interest/Principal Paid:

STEPS	KEYSTROKES	DISPLAY
Find Bi-Weekly Term	Shift Term	“run” 24.60
Find total interest savings	Term	65,430.46*
Find total interest paid	Term	245,508.33
Find total principal	Term	275,000.00
Find total principal and interest	Term	520,508.33
Find Bi-Weekly P&I Payment	Pmt	813.80
Clear calculator**	On/C On/C	0.00

*Notice you save a significant amount (over \$65K in this example) with a Bi-Weekly.

Note: Return to monthly payment mode by pressing **On/C twice.

Future Value

Given any four components to a problem that includes a future value, you can calculate the fifth.

Appreciation / Future Value

You purchased a home for \$350,000 and want to know what it will be worth in 3 years, figuring an inflation or appreciation rate of 6%. (Set to one payment period per year.)

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Set to 1 payment per year	1 Shift ÷	1.00
Enter present value	3 5 0 000 Loan Ami	350,000.00
Enter term in years	3 Term	3.00
Enter appreciation rate	6 Int	6.00
Find future value	Shift Loan Ami	“run” 416,855.60
Return to 12 payments per year	1 2 Shift ÷	12.00

*Calculations must be set to default of 12 periods per year, for compounding monthly. If it isn't, enter **1** **2** **Shift** **÷**.

Retirement Savings Account Problem (Future Value of an Initial Deposit or Lump Sum)

If you invest \$50,000 today into an IRA with an 8% yield (compounded monthly), what is the future value in 25 years? What will it be worth in 30 years?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Recall payments/year*	Rcl \div	12.00
Enter deposit into Loan Amt (present value)	5 0 000 Loan Amt	50,000.00
Enter Interest rate	8 Int	8.00
Enter Term in years	2 5 Term	25.00
Find future value	Shift Loan Amt	“run” 367,008.80
Enter new Term in years	3 0 Term	30.00
Find new future value	Shift Loan Amt	“run” 546,786.48

*Calculator must be set to default of 12 periods per year, for compounding monthly. If it isn't, enter **1** **2** **Shift** \div . If you need to set the calculator to compounded interest **other** than monthly, enter the number of periods, then **Shift** \div (e.g., for interest compounded quarterly, enter **4** **Shift** \div).

Retirement Savings (Future Value of Monthly Investment — Using Beginning Mode)

If you invest \$500 per month at the beginning of each month in a retirement plan that earns annual interest of 7% compounded monthly, what is the future value in 20 years? 30 years?

Note: the calculator defaults to End of the Month Mode, so you must change it to Beginning Mode.

STEPS	KEYSTROKES	DISPLAY
Access End Mode via Preference Settings	Shift = (press = seven times)	TYP END
Set to Beginning Mode	+	TYP BEG
Clear calculator	On/C On/C	BEG 0.00
Recall payments/year*	Rcl \div	12.00
Enter monthly deposit	5 0 0 Pmt	500.00
Enter annual Interest rate	7 Int	7.00
Enter Term in years	2 0 Term	20.00
Find value in 20 years	Shift Loan Amt	-261,982.70**

(Cont'd)

(Cont'd)

Find future value in 30 years:

STEPS	KEYSTROKES	DISPLAY
Enter Term in years	3 0 Term	30.00
Recalculate value in 30 years	Shift Loan Amrt	-613,543.75**
Access Beginning Mode via Preference Settings	Shift = (press = seven times)	TYP BEG
Set back to End Mode	+	TYP END

*Calculator must be set to default of 12 periods per year, for compounding monthly. If it isn't, enter **1 2 Shift ÷**.

**Ignore the negative sign; in this case, it is a positive value.

Non-Monthly Loans

Most residential real estate loans are based on a monthly payment schedule. However, if you have a non-monthly loan, you must change the number of payments per year using a two-key sequence: **Shift ÷**. For example, here's how to set your calculator to four payments per year.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter # of payments/year	4 Shift ÷	4.00

To recall the currently stored number of payments:

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Recall # of payments/year	Rcl ÷	4.00

IMPORTANT: To return payments per year to the default value of 12, perform the following steps:

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter # of payments/year	1 2 Shift ÷	12.00

Finding a Quarterly Payment

Find the quarterly P&I payment on a ten-year loan of \$15,000 with an annual interest rate of 12%.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Set to four payments/year	4 Shift ÷	4.00
Enter Loan Amount	1 5 000 Loan Amt	15,000.00
Enter Term in years	1 0 Term	10.00
Enter annual Interest rate	1 2 Int	12.00
Find quarterly P&I Payment	Pmt	"run" 648.94
Reset to 12 payments/year	1 2 Shift ÷	"run" 12.00

Trust Deeds and Discounted Notes

Your calculator easily handles trust deed purchase price and yield problems. Two things to remember are:

- (1) when entering or solving for "yield" or "rate of return," use the **Int** key, and
- (2) when entering or solving for "purchase price" or "present value," use the **Loan Amt** key.

Purchase Price of a Note — Fully Amortized

The mortgage you are thinking about buying has the following terms and conditions: 15 years remaining, \$100 per month incoming payments, and you want a 25% yield or return on your investment. In this case you are paying for the income stream — the incoming payments — and not the future value. What price should you pay, on this desired yield?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter desired yield	2 5 Int	25.00
Enter term in years	1 5 Term	15.00
Enter payment amount	1 0 0 Pmt	100.00
Find purchase price	Loan Amt	"run" 4,682.68

— DO NOT CLEAR CALCULATOR —

What if you want a 20% yield? Leave all of the above data and re-enter the 20% interest over the old rate, then re-calculate the loan amount.

STEPS	KEYSTROKES	DISPLAY
Enter your new desired rate of return	2 0 Int	20.00
Find purchase price	Loan Amt	"run" 5,693.80

Finding the Yield on a Discounted Note

An individual wants to sell you a note under the following terms: 60 months remaining in the term, a face amount when due of \$7,500, 10% interest-only payments of \$62.50 (incoming). He says he will sell this note to you for \$6,500 if you buy today. If you buy it, what will be the yield on your investment?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter future value of note when due	7 5 0 0 Shift Loan Amt	7,500.00
Enter purchase price	6 5 0 0 Loan Amt	6,500.00
Enter remaining Term/mths*	6 0 Shift ← Term *	60.00
Enter Payment amount	6 2 . 5 0 Pmt	62.50
Find your yield	Int	“run” 13.70

*Note: Pressing **Shift** **←** identifies your entry as a periodic value. For desktop model, press **Per** **Term** to perform this function.

— DO NOT CLEAR CALCULATOR —

What should you pay for this trust deed if you want an 18% yield on your investment?

STEPS	KEYSTROKES	DISPLAY
Enter your desired yield	1 8 Int	18.00
Find purchase price	Loan Amt	“run” 5,530.99

Finding the Value and Discount of a Trust Deed

Determine the value and discount required for a \$75,000 mortgage, payable at \$937.50 per month, bearing interest at 11% per year, due in seven years.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Store Loan Amount in Memory	7 5 000 Loan Amt M+	M 75,000.00
Enter monthly Payment	9 3 7 . 5 Pmt	937.50
Enter Term in years	7 Term	7.00
Enter annual Interest rate	1 1 Int	11.00
Calculate remaining balance	Shift Loan Amt	43,576.27

— DO NOT CLEAR CALCULATOR —

What should you pay for this trust deed if you want a 17% yield on your investment?

STEPS	KEYSTROKES	DISPLAY
Enter your desired yield	1 7 Int	17.00
Compute value of mortgage	Loan Amt	59,243.35
Subtract from Memory	Shift M+	59,243.35
Compute discount (recall memory)	Rcl M+	M 15,756.65
Clear memory*	Rcl Rcl	15,756.65

*Note: Pressing **Rcl** **Rcl** or turning the calculator **Off** will clear the value stored in Memory.

APR and Total Finance Charges

Calculating the Annual Percentage Rate (APR) and Total Finance Charges (TFC) is performed in two steps: (1) you set up the loan just like any other problem (that is, enter three known variables and solve for the fourth) and (2) combine points and fees and press **Shift Int** (APR) to solve APR. If you continue to press **Int**, the calculator will also display the total finance charges, a third press will display total principal paid, and a fourth press will display total finance charges plus principal (total cost of loan).

If mortgage insurance is entered, your calculator will include that expense into APR and total finance charges, as well as calculate the periodic mortgage insurance dollar amount and PIMI (principal, interest, mortgage insurance) payment.

Note: APR for non-real estate loans (such as for autos and boats) that compound interest based upon 365 days per year cannot not be solved using this function, as calculations are based on 360 days per year.

Finding APR and Total Finance Charges

You are financing a mortgage of \$250,000 for 30 years at a nominal or quoted rate of 8% interest. The cost of getting the loan is quoted as 1.5 points and \$550 in fees. Mortgage insurance is not required. What is the APR and total finance charges when these costs are included?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	2 5 0 000 Loan Amt	250,000.00
Enter annual Interest rate	8 Int	8.00
Enter Term in years	3 0 Term	30.00
Find monthly P&I Payment	Pmt	"run" 1,834.41

Find Loan Costs:

Recall Loan Amount	Rcl Loan Amt	250,000.00
Find point cost	X 1 0 5 % =	3,750.00
Add fees and find total	+ 5 5 0 =	4,300.00
Find APR*	Shift Int	"run" 8.18
Find total finance charges	Int	414,688.12
Find amount financed	Int	245,700.00
Find total finance charges plus amount financed	Int	660,388.12

**Note: Because APR is an interest calculation, it may take several seconds to calculate. APR includes mortgage insurance, if entered. Total finance charges include mortgage insurance over the life of the loan, to present a worst-case scenario; however, most people can eliminate MI once a certain LTV is met.*

Prepaid/Odd-Days Interest and APR

Find the monthly payment on a \$100,000 loan at 8.25% annual interest and 30-year term. Then, find the amount of odd-days interest, or “prepaid” interest due, if the escrow closes on 7/21/03 and the first payment is due 8/1/03.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	1 0 0 000 <small>Loan Amt</small>	100,000.00
Enter annual Interest rate	8 . 2 5 <small>Int</small>	8.25
Enter Term in years	3 0 <small>Term</small>	30.00
Find monthly P&I Payment	Pmt	“run” 751.27
Find days between escrow closing date and date of 1st payment	8 <small>Ⓜ</small> 1 <small>Ⓜ</small> 0 3 <small>Ⓜ</small> 7 <small>Ⓜ</small> 2 1 <small>Ⓜ</small> 0 3 <small>Ⓜ</small>	11.00
Find the prepaid interest due at closing	Shift <small>Ⓜ</small>	252.08*

**Note: This is based on a 360-day year, as most banks use this method for computing prepaid interest.*

— DO NOT CLEAR CALCULATOR —

Now, without clearing the calculator, add the prepaid interest to the loan's points and fees if they are equal to 1.5% and \$500, respectively. Then find the Annual Percentage Rate (APR), based on these closing costs.

STEPS	KEYSTROKES	DISPLAY
Store the prepaid interest in memory	M+	252.08
<i>Find Loan Costs:</i>		
Recall Loan Amount	Rcl <small>Loan Amt</small>	100,000.00
Find point cost	× 1 . 5 <small>%</small> =	1,500.00
Add fees and find total	+ 5 0 0 =	2,000.00
Add prepaid interest stored in memory	+ Rcl M+ =	2,252.08
Find APR for this loan	Shift <small>Int</small>	“run” 8.50
Clear All	Shift <small>×</small>	“All Cleared” 0.00

Adjustable Rate Mortgages

Using the **ARM** key, you can quickly find the “adjusted” (increasing or decreasing) payments for future years on fully and partially amortized Adjustable Rate Mortgages. Here are some notes on Solving ARM loans using this calculator:

1. You solve the initial ARM payment just as you would for any standard, fixed-rate loan — the ARM function is only used for “adjusted” periods.
2. The “split” **Interest** **⊗** **Term** Adjustment entry for ARMs should be entered on an annual basis (although you can also enter a 6-month adjustment term as .5). This value is permanently stored in memory.
3. After performing an ARM calculation, your permanently stored values for Term and Interest will be changed, since performing an ARM alters these values.
4. To calculate a “decreasing ARM,” enter the two ARM parameters, but press the **Shift** key *before* pressing **ARM**.
5. The calculator includes a “lifetime cap” (i.e., the maximum amount the interest rate may increase over the life of a loan). Prior to setting your ARM parameters, key in the maximum lifetime interest increase followed by **Shift** **%**. This permanently sets the lifetime cap. To restore the cap to “0” enter **0** **Shift** **%**.

ARM Payment — Worst-Case Scenario

Find the initial monthly P&I payment on a 30-year, \$176,000 mortgage at 8.25% annual interest rate, and then find the second and third year's "worst-case" adjusted payments if this ARM loan increases 1% at the end of each year. Then, find the remaining loan balance, current interest rate and remaining term.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	1 7 6 000 Loan Amt	176,000.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	8 . 2 5 Int	8.25
Find initial monthly P&I Payment (1st year)	Pmt	"run" 1,322.23
Enter ARM parameters	1 : 1 ARM	1.00 - 1.00
Find 1st adjusted (2nd year) ARM payment	ARM	1 ARM 1,445.79
Find 2nd adjusted (3rd year) ARM payment	ARM	2 ARM 1,570.86*
Find principal at start of 3rd year	Rcl Loan Amt	173,350.16
Find current Interest rate	Rcl Int	10.25
Find remaining Term	Rcl Term	28.00

*Note: You may continue pressing **ARM** to find the 4th, 5th year, etc. increasing ARM payments. The display will show the payment number to the left.

ARM Payment — Using Lifetime Cap

Using the previous mortgage, add a lifetime cap of 4% and find the adjusted payments through year six. You will need to re-enter the loan amount, term and interest.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	1 7 6 000 Loan Amt	176,000.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	8 . 2 5 Int	8.25
Find monthly P&I Payment (1st year)	Pmt	“run” 1,322.23
Enter interest cap	4 Shift %	CAP ARM 4.00%
Enter ARM parameters	1 . 1 ARM	1.00 - 1.00
Find 1st adjusted (2nd year) ARM payment	ARM	1 ARM 1,445.79
Find 2nd adjusted (3rd year) ARM payment	ARM	2 ARM 1,570.86
Find 3rd adjusted (4th year) ARM payment	ARM	3 ARM 1,697.07
Find 4th adjusted (5th year) ARM payment*	ARM	4 ARM 1,824.09
Find 5th adjusted (6th year) ARM payment*	ARM	5 ARM 1,824.09
Find principal at start of 6th year	Rcl Loan Amt	170,198.79
Find current Interest rate	Rcl Int	12.25
Find remaining Term	Rcl Term	25.00
Reset interest cap to zero	0 Shift %	CAP ARM 0.00%

Note that the payment for 4th and 5th adjustments (corresponding to the 5th and 6th years) is the same because the lifetime cap was reached on the 4th adjustment. An “M” for “maximum” will appear at the bottom of the display once the Cap is reached. Be sure to set the Cap back to “0” by pressing **0 Shift % before starting a new ARM problem.*

Decreasing ARM Payment

Calculate the initial monthly P&I payment on a 30-year, \$250,000 ARM loan at 5% interest, and then find the second and third years' adjusted payments if the loan's interest rate decreases 1% at the end of each year.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	2 5 0 000 Loan Amt	250,000.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	5 Int	5.00
Find initial monthly P&I Payment	Pmt	"run" 1,342.05
Enter ARM parameters	1 : 1 Shift ARM	-1.00 - 1.00
Find 1st lower ARM payment*	ARM	1 ARM 1,197.01
Find 2nd lower ARM payment*	ARM	2 ARM 1,064.20

*For second and third year payments.

Increasing and Decreasing ARM Payment

Find the ARM payments for a \$300,000, 30-year ARM loan that starts out at 5% but increases 1% after six months and then decreases 1.5% after an additional 12 months.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	3 0 0 000 Loan Amt	300,000.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	5 Int	5.00
Find initial monthly P&I Payment	Pmt	"run" 1,610.46
Enter 1st ARM adjustment	1 : 0 5 ARM	1.00 - 0.50
Find higher ARM payment	ARM	"run" 1 ARM 1,796.41
Enter 2nd ARM adjustment	1 : 5 : 1 Shift ARM	-1.50 - 1.00
Find lower ARM payment	ARM	"run" 1 ARM 1,527.15

Estimated Income Tax Savings and “After-Tax” Payment

Important Note: *This example estimates the annual tax savings (including property tax and mortgage interest). It is important to inform your clients to consult a tax advisor for an accurate income tax deduction computation for their particular tax situation.*

Buyers in a 28% income tax bracket are looking to finance a \$150,000 mortgage for 30 years at 8% annual interest. If they will be paying approximately \$1,500 in annual property taxes and \$250 in annual property insurance, find their estimated annual tax savings (or mortgage interest/property tax savings) and “after-tax” monthly payment.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	8 Int	8.00
Enter annual property tax	1 5 0 0 Shift 7	1,500.00
Enter annual property ins.	2 5 0 Shift 8	250.00
Enter Loan Amount	1 5 0 000 Loan Amt	150,000.00
Find monthly P&I Payment	Pmt	“run” 1,100.65
Find monthly PITI Payment	Pmt	1,246.48
Enter tax bracket	2 8 Shift Pmt*	“run” 28.00
Find annual income tax savings	Pmt	3,767.32
Find monthly tax savings	Pmt	313.94
Find “after-tax” Payment	Pmt	932.54

*For desktop model, press **Tax %** key to perform this function.

— DO NOT CLEAR CALCULATOR —

If the above loan starts in July, find the “after-tax” payment.

STEPS	KEYSTROKES	DISPLAY
Set Month Offset to July	7 Shift 000	7.00
Enter tax bracket	2 8 Shift Pmt*	28.00
Find annual tax savings	Pmt	1,887.16
Find monthly tax savings	Pmt	314.53
Find “after-tax” Payment	Pmt	931.95
Return Month Offset to January	1 Shift 000	1.00

*For desktop model, press **Tax %** key to perform this function.

Rent vs. Buy

If your client is currently renting a home for \$1,250/month, what is the comparable home sales price and loan amount that he or she could afford? What is the estimated annual and monthly income tax savings, if they were to finance this mortgage? The current rate is 7.5% on a 30-term fixed-rate mortgage, and your client can afford to put 10% down. You estimate local taxes at 1.25% and property insurance at 0.35%. Your client is in the 28% tax bracket.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter annual Interest rate	7 . 5 Int	7.50
Enter Term in years	3 0 Term	30.00
Enter Down Payment %	1 0 Dn Pmt	10.00
Enter tax bracket	2 8 Shift +	28.00
Enter property tax rate	1 . 2 5 Shift 7	1.25
Enter property insurance rate	. 3 5 Shift 8	0.35
Enter current monthly rent to find comparable home price	1 2 5 0 Shift Price * “run”	216,781.98
Find comparable loan amount	Price	195,103.78
Find monthly PITI payment	Price	1,653.24
Find annual tax savings	Price	4,838.84
Find monthly tax savings	Price	403.24
Re-display tax bracket	Price	28.00
Re-display monthly rent	Price	1,250.00

*For desktop model, press **“BUY”** key to perform this function.

BUYER PRE-QUALIFYING

The Qualifying keys were designed specifically for mortgage lenders/brokers, for doing instant pre-qualifications on the phone or in front of clients. Real estate agents/brokers can also quickly pre-qualify clients so they can show them homes in their affordable price range.

The calculator gives you three types of qualifying answers:

- (1) Loan Amount available given buyer's income and debt,
- (2) Income required given loan amount (or price/down payment),
- (3) Actual Ratios given both income/debt and property data. Here are some notes on qualifying using your calculator:
 1. The **Qual 1** and **Qual 2** keys are multi-function "smart" keys. In other words, they deliver a variety of answers based on what is input, and what is not. The calculator will figure out which qualifying solutions should be displayed, based on the qualifying variables you've input.
 2. You can use both Qualifying keys **Qual 1** and **Qual 2** to demonstrate various loan qualifying comparisons or scenarios (e.g., conventional vs. FHA loans). Simply store different income and debt qualifying ratios. For example, the **Qual 1** key defaults to 28% Income and 36% Debt, for conventional loan qualifying. The **Qual 2** key defaults to 29% Income and 41% Debt. However, you may store *any* ratios you want into these keys, or change these ratios at any time.
 3. A calculated Qualifying Loan Amount is automatically stored in the Loan Amount **Loan Amt** register, replacing any existing Loan Amount value. This lets you instantly proceed to monthly payment calculations, etc.

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4. When calculating Qualifying Loan Amount (based on entered buyer's data, term, interest and stored qualifying ratios), successive presses of the **Qual 1** or **Qual 2** keys give the following results:
- the first press of **Qual 1** or **Qual 2** will display your stored ratios;
 - the second press in succession will display the “restricted,” maximum qualifying loan amount (used in loan approval);
 - the third press in succession will show the buyer’s actual income and debt ratios;
 - the fourth press will display the higher, “unrestricted” qualifying loan amount; and
 - the last press will display the allowable monthly debt.

*Note: You can set your Qualifying Ratios to display first or last via the Preference Settings. See **page 22**.*

5. When calculating Annual Income Required (based on entered loan amount or sales price, term, interest and stored qualifying ratios), the first press of **Qual 1** or **Qual 2** will display your stored ratios, the second press in succession will display the Annual Income Required, and the third press in succession will show the Allowable Monthly Debt.
6. When calculating buyer's Actual Ratios based on entered borrower data (i.e., income and debt) and property data (i.e., loan amount, sales price), the first press of **Qual 1** or **Qual 2** will display the stored qualifying ratios, and the second press will calculate the buyer's actual ratios.
7. You can use the **Exp** (*Expense*), **Shift 7** (*Tax*), **Shift 8** (*Ins*), and **Shift 9** (*Mtg Ins*) keys as optional variables affecting buyer qualifying (and PITI payments). Tax and Insurance rates are calculated from the Sales Price. Mortgage Insurance is calculated from the Loan Amount.

QUALIFYING EXAMPLES

Most of the examples in this section will be based on the default Income and Debt Ratios of 28% and 36%, respectively, which are stored in the **Qual 1** key.

Recalling Income/Debt Qualifying Ratios

Recall stored 28%-36% and 29%-41% ratios:

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Recall Qualifying Ratios 1	Rcl Qual 1	28.00-36.00
Recall Qualifying Ratios 2	Rcl Qual 2	29.00-41.00

Storing New Income/Debt Qualifying Ratios

Enter and permanently store new qualifying ratios of 30% for Income and 38% for Debt in **Qual 1**:

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Set Qualifying Ratios	3 0 : 3 8 Qual 1	30.00-38.00
Return ratios to 28:36*	2 8 : 3 6 Qual 1	28.00-36.00

**Note: Your ratios will be permanently stored, and will remain even after your calculator is turned off. However, if you have changed the Qualifying Ratios from the default of 28:36 (Qual 1) or 29:41 (Qual 2), you can re-enter these ratios at any time.*

Finding Qualifying Loan Amount and Sales Price (Simple Example Excluding Tax/Insurance)

Given an interest rate of 7.5%, a term of 30 years, and the stored 28%:36% qualifying ratios, for what size loan and what sales price can a buyer qualify for if he or she makes \$75,000 annually and has \$500 in long-term monthly debt? The buyer plans to put \$35,000 down. Also, what is the monthly (P&I) payment? (*Based on no Tax and Insurance**)

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	7 . 5 Int	7.50
Clear property tax rate*	0 Shift 7	0.00
Clear insurance rate*	0 Shift 8	0.00
Enter annual Income	7 5 000 Inc	75,000.00
Enter monthly Debt	5 0 0 Debt	500.00
Enter Down Payment	3 5 000 Dn Pmt	35,000.00
Display Qualifying Ratios	Qual 1	28.00-36.00
Find Qualifying Loan Amount	Qual 1	“run” 250,280.85
Find Price	Price	285,280.85
Find monthly P&I Payment	Pmt	1,750.00

**Note: Tax and Insurance will need to be cleared if you're continuing from a previous example where rates were stored.*

— DO NOT CLEAR CALCULATOR —

Re-qualify this buyer assuming \$200 per month in additional debt.

STEPS	KEYSTROKES	DISPLAY
Enter new monthly Debt	7 0 0 Debt	700.00
Display Qualifying Ratios	Qual 1	28.00-36.00
Find Qualifying Loan Amount	Qual 1	“run” 221,677.32
Find Price	Price	256,677.32
Find monthly P&I Payment	Pmt	1,550.00

Qualifying Loan Amount and Sales Price (Complete Example Including Down Payment, Tax/Insurance, Monthly Association Dues)

The same buyers as in the previous example (who make \$75,000 annually and have \$500 in long-term monthly debt) wish to buy a lower-priced home and can only put \$5,000 down. If you include estimated annual property taxes and insurance of 1.5% and 0.25%, respectively, a mortgage insurance rate of 0.6% and monthly homeowner's association dues of \$50, for what loan amount can they now qualify? What sales price can they afford? What's their total payment? (Again, use the previously stored 7.5% interest, 30-year term, and qualifying ratios of 28%:36%; if you've cleared or changed these values, please re-enter them.)

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter annual Income	7 5 000 Inc	75,000.00
Enter monthly Debt	5 0 0 Debt	500.00
Enter Down Payment	5 000 Dn Pmt	5,000.00
Enter property tax rate	1 . 5 Shift 7	1.50
Enter property insurance rate	. 2 5 Shift 8	0.25
Enter mortgage insurance rate	. 6 Shift 9	0.60
Enter monthly association dues	5 0 Exp	50.00
Recall annual Interest rate*	Rcl Int	7.50
Recall Term* in years	Rcl Term	30.00
Display Qualifying Ratios	Qual 1	28.00-36.00
Find Qualifying Loan Amount	Qual 1	"run" 189,119.31
Find Price	Price	194,119.31

— DO NOT CLEAR CALCULATOR —

Now find the monthly P&I payment, PITI payment, total payment, and interest-only payment:

STEPS	KEYSTROKES	DISPLAY
Find monthly P&I Payment	Pmt	"run" 1,322.35
Find monthly PITI Payment	Pmt	1,700.00
Find total monthly Payment	Pmt	1,750.00
Find monthly interest-only Payment	Pmt	1,182.00

*If you're not continuing from the previous problem, you'll need to re-enter interest and term.

“Restricted” Qualifying

Buyers who make \$68,000 annually and have \$750 in long-term monthly debt wish to buy a home offered at \$175,000. They can only afford \$5,000 for the down payment. For what maximum loan amount can they qualify? (Use previously stored 7.5% interest, 30-year term, 1.5% property tax, .25% property insurance, and qualifying ratios of 28%:36%. Re-enter 0.6% mortgage insurance rate, \$50 association dues and \$5,000 down.)

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Recall annual Interest rate*	Rcl Int	7.50
Recall Term* in years	Rcl Term	30.00
Recall property tax rate*	Rcl 7	1.50
Recall property insurance rate*	Rcl 8	0.25
Re-enter mortgage insurance rate*	◻ 6 Shift 9	0.60
Enter monthly association dues	5 0 Exp	50.00
Enter Down Payment	5 000 Dn Pmt	5,000.00
Enter annual Income	6 8 000 Inc	68,000.00
Enter monthly Debt	7 5 0 Debt	750.00
Display Qualifying Ratios	Qual 1	28.00-36.00
Find “restricted” Qualifying Loan Amount	Qual 1	“run” 137,725.41

— DO NOT CLEAR CALCULATOR —

**Note: If you’re not continuing from the previous problem, you’ll need to re-enter interest, term, and in this case, property tax, insurance, and mortgage insurance.*

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“Unrestricted” Qualifying

The amount calculated in the previous example is the loan they may qualify for, based on current income and debt and the standard 28%-36% qualifying ratios. What are the buyer's actual income and debt ratios? What does the “unrestricted” loan amount calculate to, and which side is it based on (e.g., buyer's income or debt)? What is the buyer's maximum allowable debt?

STEPS	KEYSTROKES	DISPLAY
Find actual Ratios	Qual 1	“run” 22.76-36.00
Find “unrestricted” Loan Amount	Qual 1	UNR 170,870.75 LA INC*
Find maximum allowable monthly Debt	Qual 1	453.33**

Note: The “INC” tells you this unrestricted Qualifying Loan Amount is based on the buyer's Income Ratio — therefore, the restricted Qualifying Loan Amount is based on the buyer's Debt Ratio. This means that if they pay off their monthly debt to \$453/month or lower (as seen in “allowable debt” calculation), they may qualify for a mortgage of approximately \$170,000 or more and the \$175,000 home (putting approximately \$4-\$5K down).*

Qualifying Comparison (Comparing 2 Different Loans or Ratios at Once)

Given a buyer's annual income of \$60,000, \$500 in long-term monthly debt, estimated monthly homeowner's association dues of \$50, an interest rate of 6.25% and term of 30 years, what loan amounts can they qualify for based on both 28%:36% and higher 29%:41% ratios? Also, find the corresponding total monthly payment for each. Estimate property tax/insurance rates of 1.25% and .3%, respectively, and a mortgage insurance rate of .45%.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter annual Income	6 0 000 Inc	60,000.00
Enter monthly Debt	5 0 0 Debt	500.00
Enter monthly association dues	5 0 Exp	50.00
Enter annual Interest rate	6 . 2 5 Int	6.25
Enter Term in years	3 0 Term	30.00
Enter property tax rate	1 . 2 5 Shift 7	1.25
Enter property insurance rate	. 3 Shift 8	0.30
Enter mortgage insurance rate	. 4 5 Shift 9	0.45
Display Qual 1 stored Ratios	Qual 1	28.00-36.00
Find Qual 1 Loan Amount	Qual 1	"run" 159,768.12
Find monthly P&I Payment	Pmt	"run" 983.72
Find monthly PITI Payment	Pmt	1,250.00
Find total monthly Payment	Pmt	1,300.00
Find monthly interest-only Payment	Pmt	832.13

— DO NOT CLEAR CALCULATOR —

STEPS	KEYSTROKES	DISPLAY
Display Qual 2 stored Ratios	Qual 2	29.00-41.00
Find Qual 2 Loan Amount	Qual 2	"run" 178,940.29*
Find monthly P&I Payment	Pmt	"run" 1,101.77
Find monthly PITI Payment	Pmt	1,400.00
Find total monthly Payment	Pmt	1,450.00
Find monthly interest-only Payment	Pmt	931.98

*Notice that, of course, the qualifying loan amount is significantly higher using Qual 2 ratios.

Finding Income Required and Allowable Monthly Debt

Using the 28%:36% ratios, how much income would a buyer need to finance a \$250,000 home if they put 20% down? What is the maximum allowable debt? What is the \$ down payment and loan amount? What is the monthly payment? Use 6.75% interest for 30 years. Estimate property tax/insurance rates of 1.5% and 0.25%, respectively. Clear mortgage insurance rate to zero, as they are putting 20% down.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter annual interest rate	6 . 7 5 Int	6.75
Enter Term in years	3 0 Term	30.00
Enter tax rate	1 . 5 Shift 7	1.50
Enter insurance rate	. 2 5 Shift 8	0.25
Delete mortgage insurance rate	0 Shift 9	0.00
Enter sales price	2 5 0 000 Price	250,000.00
Enter Down Payment %	2 0 Dn Pmt	20.00
Find Down Payment \$	Dn Pmt	50,000.00
Find Loan Amount	Loan Amt	200,000.00
Display Qualifying Ratios	Qual 1	28.00-36.00
Find income required	Qual 1	“run” 71,219.12
Find maximum allowable monthly debt	Qual 1	474.79
Find monthly P&I Payment	Pmt	1,297.20
Find monthly PITI Payment	Pmt	1,661.78

Solving for Actual Qualifying Ratios

A buyer who makes \$120,000 annually and has \$550 in long-term monthly debt wants to borrow \$275,000 to purchase a home. He has \$68,750 for the down payment and the property tax/insurance rates are estimated at 1.4% and 0.2%, respectively; monthly homeowner's association dues are \$65. Use 6.5% interest for 30 years. What are his actual ratios? What is the price of the home he can afford? What is the monthly payment?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter annual Interest rate	6 . 5 Int	6.50
Enter Term in years	3 0 Term	30.00
Enter Loan Amount	2 7 5 000 Loan Amt	275,000.00
Enter Down Payment	6 8 7 5 0 Dn Pmt	68,750.00
Enter annual Income	1 2 0 000 Inc	120,000.00
Enter monthly Debt	5 5 0 Debt	550.00
Enter property tax rate	1 . 4 Shift 7	1.40
Enter property insurance rate	. 2 Shift 8	0.20
Clear mortgage insurance rate*	0 Shift 9	0.00
Enter monthly association dues	6 5 Exp	65.00
Display stored Qual Ratios	Qual 1	28.00-36.00
Calculate actual Ratios	Qual 1	"run" 22.62-28.12
Find sales Price	Price	343,750.00
Find the monthly P&I Payment	Pmt	1,738.19
Find the monthly PITI Payment	Pmt	2,196.52
Find the total monthly Payment	Pmt	2,261.52

*Should be set to zero in this case, as the down payment is 20%; to check down payment %, press **Dn Pmt** again and it will read 20.00%.

1ST AND 2ND TRUST DEEDS (COMBO LOANS)

Your calculator also figures Combo loans, or 1st and 2nd Trust Deeds, which are common financing options for clients with smaller down payments, who want to avoid mortgage insurance. The benefit of Combo loans over single, fixed-rate loans with mortgage insurance is that the buyer can actually save money obtaining two loans vs. a single, larger loan requiring monthly mortgage insurance.

This calculator will find, after entry of appropriate loan variables (including 1st and 2nd TD interest and term), the following loan values for 80:10:10 and 80:15:5 — or any LTV — loans:

- Blended interest rate for 1st and 2nd TD and equivalent interest rate of fixed-rate loan w/mortgage insurance;
- Combined payment for 1st and 2nd TD and equivalent payment for fixed-rate loan w/mortgage insurance;
- Monthly savings of 1st and 2nd TD over fixed-rate loan w/mortgage insurance;
- Adjusted term if savings applied to 2nd TD; and
- 1st and 2nd TD loan amounts and payments.

See the following examples. Note the first examples are for 80:10:10 and 80:15:5 loans, and the last example demonstrates how to enter any LTV.

Combo Loan (80:10:10) vs. Fixed-Rate Loan with Mortgage Insurance

You'd like to show your client the savings of a fixed-rate Combo Loan (80:10:10) over that of a standard, fixed-rate loan with mortgage insurance. You have the following parameters:

	FIXED-RATE LOAN w/MI	FIXED-RATE COMBO LOAN (1st TD – 2nd TD)
Loan Amount	100,000	100,000
Interest	7%	7% – 9%
Term	30	30 year – 30 year
MI	.5%	--
LTV	90%	80% – 10%

STEPS	KEYSTROKES	DISPLAY
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1. Enter Fixed-Rate Loan Values and Find Total Payment:

Clear calculator	On/C On/C	0.00
Enter Loan Amount	1 0 0 000 Loan Amt	100,000.00
Enter Down Payment	1 0 Dn Pmt	10.00
Enter annual Interest rate	7 Int	7.00
Enter Term in years	3 0 Term	30.00
Enter MI (mortgage insurance) rate	0.5 Shift 9	0.50
Clear property tax rate	0 Shift 7	0.00
Clear property insurance rate	0 Shift 8	0.00
Solve for monthly P&I Payment	Pmt	"run" 665.30
Solve for monthly PITI Payment (with MI)	Pmt	706.97

2. Enter Combo Loan Values:

Enter 1st TD		
Interest:Term	7 : 3 0 1st Int: Term	7.00-30.00
Enter 2nd TD		
Interest:Term	9 : 3 0 Shift 1st Int: Term	9.00-30.00

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STEPS	KEYSTROKES	DISPLAY
3. Find 80:10:10 Combo Loan and Comparison Values (vs. Fixed-Rate Loan with Mortgage Insurance):		
Find 1st:2nd combined (blended) interest rate	80:10:10	“run” 7.23
Find equivalent interest rate of single, fixed-rate loan with MI	80:10:10	“run” 7.61
Find total combined (1st/2nd) payment	80:10:10	680.78
Find equivalent payment of single, fixed-rate loan with MI	80:10:10	706.97
Find monthly savings over fixed-rate loan with MI	80:10:10	26.19
Find adjusted 2nd term (if savings applied to 2nd TD)	80:10:10	“run” 14.23
Find 1st TD loan amount	80:10:10	88,888.89
Find 2nd TD loan amount	80:10:10	11,111.11
Find 1st TD monthly payment	80:10:10	591.38
Find 2nd TD monthly payment	80:10:10	89.40
Re-display LTV	80:10:10	80.00-10.00

Combo Loan (80:15:5) vs. Fixed-Rate Loan with Mortgage Insurance

You'd like to show your client the savings of a fixed-rate Combo Loan (80:15:5) over that of a standard, fixed-rate loan with mortgage insurance. You have the following parameters:

	FIXED-RATE LOAN w/MI	FIXED-RATE COMBO LOAN (1st TD – 2nd TD)
Loan Amount	100,000	100,000
Interest	7%	7% – 9%
Term	30	30 year – 30 year
MI	.5%	--
LTV	95%	80% – 15%

STEPS	KEYSTROKES	DISPLAY
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1. Enter Fixed-Rate Loan Values and Find Total Payment:

Clear calculator	On/C On/C	0.00
Enter Loan Amount	1 0 0 000 Locn Amt	100,000.00
Enter Down Payment	5 Dn Pmt	5.00
Enter annual Interest rate	7 Int	7.00
Enter Term in years	3 0 Term	30.00
Enter MI (mortgage insurance) rate	◦ 5 Shift 9	0.50
Clear property tax rate	0 Shift 7	0.00
Clear property insurance rate	0 Shift 8	0.00
Solve for monthly P&I Payment	Pmt	“run” 665.30
Solve for monthly PITI Payment (with MI)	Pmt	706.97

2. Enter Combo Loan Values:

Enter 1st TD Interest:Term	7 : 3 0 1st Int: Term	7.00-30.00
Enter 2nd TD Interest:Term	9 : 3 0 Shift 1st Int: Term	9.00-30.00

(Cont'd)

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STEPS	KEYSTROKES	DISPLAY
<i>3. Find 80:15:5 Combo Loan and Comparison Values (vs. Fixed-Rate Loan with Mortgage Insurance):</i>		
Find 1st:2nd blended interest rate	Shift 80:10:10	“run” 7.33
Find equivalent interest rate of single, fixed-rate loan with MI	80:10:10	“run” 7.61
Find total combined (1st/2nd) payment	80:10:10	687.30
Find equivalent payment of single, fixed-rate loan with MI	80:10:10	706.97
Find monthly savings over fixed-rate loan with MI	80:10:10	19.67
Find adjusted 2nd term (if savings applied to 2nd TD)	80:10:10	“run” 18.36
Find 1st TD loan amount	80:10:10	84,210.53
Find 2nd TD loan amount	80:10:10	15,789.47
Find 1st TD monthly payment	80:10:10	560.25
Find 2nd TD monthly payment	80:10:10	127.05
Re-display LTV	80:10:10	80.00-15.00

Combo Loan — *Entering a New LTV*

You'd like to show your client the savings of a fixed-rate Combo Loan (90:5:5) over that of a standard, fixed-rate loan with MI. You have the following parameters:

	FIXED-RATE LOAN w/MI	FIXED-RATE COMBO LOAN (1st TD – 2nd TD)
Loan Amount	100,000	100,000
Interest	7%	7% – 9%
Term	30	30 year – 30 year
MI	.5%	--
LTV	95%	90% – 5%

STEPS	KEYSTROKES	DISPLAY
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1. Enter Fixed-Rate Loan Values and Find Total Payment:

Clear calculator	On/C On/C	0.00
Enter Loan Amount	1 0 0 000 Locn Amt	100,000.00
Enter Down Payment	5 Dn Pmt	5.00
Enter annual Interest rate	7 Int	7.00
Enter Term in years	3 0 Term	30.00
Enter MI (mortgage insurance) rate	◦ 5 Shift 9	0.50
Clear property tax rate	0 Shift 7	0.00
Clear property insurance rate	0 Shift 8	0.00
Solve for monthly P&I Payment	Pmt	“run” 665.30
Solve for monthly PITI Payment (with MI)	Pmt	706.97

2. Enter Combo Loan Values:

Enter 1st TD Interest:Term	7 : 3 0 1st Int: Term	7.00-30.00
Enter 2nd TD Interest:Term	9 : 3 0 Shift 1st Int: Term	9.00-30.00 (Cont'd)

(Cont'd)

STEPS	KEYSTROKES	DISPLAY
3. Find 90:5:5 Combo Loan and Comparison Values (vs. Fixed-Rate Loan with Mortgage Insurance):		
Enter LTV and find 1st:2nd blended interest rate	9 0 5 80:10:10	“run” 7.11
Find equivalent interest rate of fixed-rate loan with MI	80:10:10	“run” 7.61
Find total combined (1st/2nd) payment	80:10:10	672.64
Find equivalent payment of fixed-rate loan with MI	80:10:10	706.97
Find monthly savings over fixed-rate loan with MI	80:10:10	34.33
Find adjusted 2nd term (if savings applied to 2nd TD)	80:10:10	“run” 8.06
Find 1st TD loan amount	80:10:10	94,736.84
Find 2nd TD loan amount	80:10:10	5,263.16
Find 1st TD monthly payment	80:10:10	630.29
Find 2nd TD monthly payment	80:10:10	42.35
Re-display LTV	80:10:10	90.00-5.00

*Note: an entered LTV is not stored; in order to re-calculate a Combo Loan based on a different LTV than 80:10:10 or 80:15:5, you will need to enter the LTV prior to pressing **80:10:10** (or **Shift 80:10:10**).*

Finance Mortgage Insurance compared to a Combo Loan

Financed Mortgage Insurance loans allow for higher than 80% LTV on a straight first loan because the Mortgage Insurance added to the loan amount. Another benefit to the Financed MI loan is the interest is tax deductible. In many cases the Financed MI loan may be better than a combo loan.

We will compare a Financed Mortgage Insurance loan to a Combo Loan, with a loan amount of \$90,000.

	FINANCED MI LOAN	FIXED-RATE COMBO LOAN (1st TD – 2nd TD)
Loan Amount	90,000	90,000
Interest	6%	6% – 8%
Term	30	30 year – 30 year
MI	.62%	--
LTV	90%	80% – 10%

In order to compare a financed mortgage insurance loan to a combo loan, you must first calculate the monthly MI premium and enter it as mortgage insurance as you would a standard fixed-rate loan (do not add the Financed MI Premium to the loan amount in this comparison).

STEPS	KEYSTROKES	DISPLAY
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1. Find the Financed Mortgage Insurance premium:

Clear calculator	On/C On/C	0.00
Multiply loan amount x MI	9 0 000 × 6 2 % =	558.00

2. Find Monthly MI Premium and enter it into the Mortgage Insurance key:

Enter financed MI into Loan Amount	Loan Amt	558.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	6 Int	6.00
Calculate monthly MI premium	Pmt	“run” 3.35
Enter monthly MI premium into mortgage insurance	= Shift ← Shift 9	3.35

— DO NOT CLEAR CALCULATOR —

3. Enter loan values:

Enter Loan Amount	9 0 000 Loan Amt	90,000.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest rate	6 Int	6.00
Calculate monthly P&I Payment with MI	Pmt Pmt	“run” 542.94

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STEPS	KEYSTROKES	DISPLAY
4. Enter Combo Loan Values:		
Enter 1st TD Interest:Term	6 ⬆ 3 0 1st Int:Term	6.00-30.00
Enter 2nd TD Interest:Term	8 ⬆ 3 0 Shift 1st Int:Term	8.00-30.00
5. Solve Combo Loan for comparison:		
Find 1st:2nd blended interest rate	80:10:10	“run” 6.23
Find equivalent interest rate of financed MI loan	80:10:10	“run” 6.06
Find total combined (1st/2nd TD) payment	80:10:10	553.02
Find equivalent payment of of financed MI loan	80:10:10	542.94
Find Combo monthly savings over financed MI loan	80:10:10	-10.08

Note: the Financed MI is better when compared to the Combo loan with a monthly savings of \$10.08.

— DO NOT CLEAR CALCULATOR —

What happens if you compared to a 20 year 2nd Trust Deed at a rate of 8%? Typically, the monthly payment savings will be greater.

STEPS	KEYSTROKES	DISPLAY
7. Enter new Interest:Term for 2nd TD		
	8 ⬆ 2 0 Shift 1st Int:Term	8.00-20.00
8. Solve Combo Loan for comparison:		
Find 1st:2nd blended interest rate	80:10:10	“run” 6.18
Find equivalent interest rate of financed MI loan	80:10:10	“run” 6.06
Find total combined (1st/2nd TD) payment	80:10:10	563.28
Find equivalent payment of of financed MI loan	80:10:10	542.94
Find Combo monthly savings over financed MI loan	80:10:10	-20.34

Note: the Financed MI is still better when compared to the Combo loan with a monthly savings of \$20.34.

CASH FLOW EXAMPLES

Your calculator has easy-to-use cash flow keys for performing real estate investment, or cash flow analysis.

Cash Flow Entry

The Cash Flow key can store up to 20 sequential, semi-permanent cash flows, including an Initial Investment, along with their corresponding Frequencies. The Cash Flow numbering begins at zero (C-0 is displayed) and ends at 19 (C-19 is displayed), for a total of 20 individual Cash Flows. The first Cash Flow (C-0) is the Initial Investment, and must be entered as a negative value to be identified as a cash outlay.

Note: If there is no initial investment, enter zero for Cash Flow Zero (C-0).

Cash Flow Frequency

Each cash flow has a corresponding frequency to identify the number of consecutive occurrences for that Cash Flow (default is 1). Because the first Cash Flow is assumed to be the initial investment, the frequency remains at one and cannot be changed. Frequencies are numbered similar to Cash Flows (F-1 through F-19).

Frequencies are entered via **Shift** **Cash Flow**. When entering a Cash Flow, you can specify if the Cash Flow will occur multiple times for a consecutive period. For instance, if you expected to receive a payment for the same amount (e.g., \$500) for twelve months consecutively, you would enter your \$500 cash flow, and then enter in 12 for its frequency (i.e. number of consecutive occurrences).

Delete/Modify Cash Flows

To delete all Cash Flows, press **Shift** **6**. This does not affect any other stored values or Preference Settings.

To modify an existing Cash Flow or Frequency, do the following:

- 1) First recall the Cash Flow or Frequency to be modified (e.g., **1** **Rcl** **Cash Flow** displays Cash Flow #1),
- 2) Enter the new value to be stored in place of the recalled value,
- 3) Store the new value by using the Stor function:
 - a. **Shift** **Rcl** **Cash Flow** for storing a new cash flow value, or
 - b. **Shift** **Rcl** **Shift** **Cash Flow** for storing a new frequency.

IRR, NPV, and NFV Functions

The **IRR** key is multifunctional, and consecutive presses calculate:

- the annual Internal Rate of Return (IRR%);
- the Net Present Value (NPV) of the entered cash flows, based on an entered desired Rate of Return, and the stored Payments per Year (*default = 12*);
- the Net Future Value; and
- (re-display of) the entered Rate of Return.

*Note: If you wish to skip directly to the NPV calculation, press **Shift IRR**.*

The desired Rate of Return is entered prior to performing the calculation (as shown in the following examples), or can be stored in the **Inf** key. If a desired Rate of Return is not entered prior to performing the IRR, NPV, and NFV calculations, then the stored Interest Rate is used as the desired Rate of Return.

See the following examples for entry of Cash Flows and Frequencies, and IRR, NPV, and NFV calculations.

Note: The last example provides instructions on how to modify or recall Cash Flows and Frequencies.

Calculating IRR, NPV, and NFV for Annual Cash Flows

A real estate investor wishes to purchase/finance a piece of property for \$225,000. He'd like a return of 9% and expects to sell it after five years for \$275,000. He expects the annual cash flows below. Find the IRR, NPV and NFV, and determine whether this investment is desirable.

*Note: since payments are expected to be received **annually**, you will need to set your Payments per Year to 1.*

Annual Cash Flow

Year 1	\$16,000
Year 2	\$16,600
Year 3	\$16,900
Year 4	\$17,200
Year 5	\$275,000

STEPS	KEYSTROKES	DISPLAY
Clear cash flow register	Shift 6	"CF Cleared" 0.00
Set payments per year to one	1 Shift ÷	1.00
Enter initial investment (as a negative entry indicating a Cash outlay)	2 2 5 000 Shift - Cash Flow	C-0 -225,000.00
Enter 1st Cash Flow value	1 6 000 Cash Flow	C-1 16,000.00
Enter 2nd Cash Flow	1 6 6 0 0 Cash Flow	C-2 16,600.00
Enter 3rd Cash Flow	1 6 9 0 0 Cash Flow	C-3 16,900.00
Enter 4th Cash Flow	1 7 2 0 0 Cash Flow	C-4 17,200.00
Enter 5th (final) Cash Flow	2 7 5 000 Cash Flow	C-5 275,000.00
Find the IRR	IRR	"run" 9.83%
Enter the desired rate of return and calculate NPV	9 Shift IRR	"run" 7,616.73
Find the NFV	IRR	11,719.29
Re-display the desired rate of return	IRR	9.00%
Clear registers*	Shift X	"All Cleared" 0.00

*This will clear Cash Flows and reset payments per year to 12 (e.g. monthly) for performing the other examples in this guide.

Analysis: This investment would provide an internal rate of return greater than the desired rate of return, making this a positive investment.

Calculating IRR, NPV, and NFV for Monthly Cash Flows

A real estate investor wishes to purchase/finance a piece of property for \$225,000. She'd like a return of 10% and expects to sell it after five years for \$275,000. She expects the monthly cash flows below. Find the IRR, NPV and NFV, and determine whether this investment is desirable.

*Note: since payments are expected to be received **monthly**, you will need to set your Payments per Year to 12.*

Monthly Cash Flows

Year 1	\$1,000
Year 2	\$1,100
Year 3*	\$1,200
Year 4*	\$1,200
Year 5	\$275,000

STEPS	KEYSTROKES	DISPLAY
Clear cash flow register	Shift 6	"CF Cleared" 0.00
Enter payments per year	1 2 Shift ÷	12.00
Enter initial investment (as a negative entry indicating a cash outlay)	2 2 5 000 Shift - Cash Flow	C-0 -225,000.00
Enter 1st Cash Flow value	1 000 Cash Flow	C-1 1,000.00
Enter 1st Cash Flow frequency	1 2 Shift Cash Flow	F-1 12.00
Enter 2nd Cash Flow value	1 1 0 0 Cash Flow	C-2 1,100.00
Enter 2nd Cash Flow frequency	1 2 Shift Cash Flow	F-2 12.00
Enter 3rd Cash Flow value	1 2 0 0 Cash Flow	C-3 1,200.00
Enter 3rd Cash Flow frequency*	2 4 Shift Cash Flow	F-3 24.00
Enter final (4th) Cash Flow	2 7 5 000 Cash Flow	C-4 275,000.00
Find the IRR	IRR	10.26%
Enter the desired rate of return and calculate NPV	1 0 Shift IRR	"run" 2,127.07
Find the NFV	IRR	3,194.37
Re-display the desired rate of return	IRR	10.00%

*Because the amount of monthly rent for Years 3 and 4 remains the same, this Cash Flow amount is entered once (C-3), and the frequency for this Cash Flow is set to 24, indicating that this amount is received for two years, or 24 total payments.

Analysis: This investment would bring an internal rate of return of 10.26%. The NPV is over \$2,000, resulting in a positive return on investment.

— DO NOT CLEAR CASH FLOWS —

(Cont'd)

(Cont'd)

Recalling and Replacing Cash Flows

STEPS	KEYSTROKES	DISPLAY
1) Recall all cash flows and frequencies:		
Initial Cash Flow	Rcl Cash Flow	C-0 -225,000.00
1st Cash Flow	Cash Flow	C-1 1,000.00
1st Cash Flow frequency	Cash Flow	F-1 12.00
2nd Cash Flow	Cash Flow	C-2 1,100.00
2nd Cash Flow frequency	Cash Flow	F-2 12.00
3rd Cash Flow	Cash Flow	C-3 1,200.00
3rd Cash Flow frequency	Cash Flow	F-3 24.00
4th Cash Flow	Cash Flow	C-4 275,000.00
4th Cash Flow frequency	Cash Flow	F-4 1.00

2) Recall a specific cash flow (in this example, the first cash flow):

Recall 1st Cash Flow **1** **Rcl** **Cash Flow** C-1 1,000.00

3) Recall and replace a specific cash flow (in this case, the second cash flow):

Recall 2nd Cash Flow **2** **Rcl** **Cash Flow** C-2 1,100.00

Replace with new Cash Flow

value of \$1,150 **1** **1** **5** **0** **Shift** **Rcl*** **Cash Flow** C-2 1,150.00

— DO NOT CLEAR CASH FLOWS —

Recalling and Replacing Cash Flow Frequencies

STEPS	KEYSTROKES	DISPLAY
1) Recall the first frequency:	Rcl Shift Cash Flow	F-1 12.00
2) Or, recall a specific frequency (in this example, the second cash flow frequency):	2 Rcl Shift Cash Flow	F-2 12.00
3) Recall and replace frequency of a cash flow:		
a) Recall 1st frequency	1 Rcl Shift Cash Flow	F-1 12.00
b) Replace frequency of 12 with a frequency of 6 (i.e., six months)	6 Shift Rcl * Shift Cash Flow	F-1 6.00

*To modify an existing cash flow or frequency, first recall the cash flow or frequency to be modified (e.g., **1** **Rcl** **Cash Flow** displays cash flow # 1), enter the new value to be stored in place of the recalled value, and then store the new value by using the Stor function (**Shift** **Rcl** **Cash Flow**) for storing a new cash flow value, or (**Shift** **Rcl** **Shift** **Cash Flow**) for storing a new frequency).

Default Settings

Performing a total Reset (see below) will return the calculator to the following default settings:

- Two Fixed Decimal Places
- 12 Periods per Year = Reset to 12 Upon **Off**
- Property Tax/Insurance = Values Cleared Upon **Off**
- Mortgage Insurance = Values Cleared Upon **On/C On/C**
- Amortization Range = Specified Year (Ent-Ent)
- Qualifying Ratios Displayed 1st
- Month Offset to January (1)
- Tax Bracket = 28%
- Qual 1 Ratios = 28%-36%
- Qual 2 Ratios = 29%-41%
- Combo Loan 1st:2nd LTV = 80%:10%; 80%:15%
- End Mode

Reset

Manual Reset

If your calculator's display should ever freeze or "lock up," press **Reset** — a small hole located to the left of the **Off** key — to perform a total reset. (It is recommended you use a straightened paper clip, as the hole is extremely small).

Keystroke Reset — Returning the Calculator to its Original Factory Settings

You may at times want to reset your calculator to its factory settings (e.g., reset all registers and Preference Settings to their original default values). To do this, turn off the calculator, hold down the **X** key, and then turn it back on.

Error Codes

With an incorrect entry or answer beyond the range of the calculator, the display will show one of the following error messages. To clear an error, simply press any key.

OFLO	— Number Too Large to Display
DIV Error	— Attempted to Divide by Zero
TVM Error	— Time-Value-of-Money Error
ENT Error	— Invalid Entry
PPY Error	— Payments Per Year Error
QL Error	— Qualifying Error

Auto Shut-Off

Your calculator is designed to shut itself off after about 8-12 minutes of non-use.

Batteries

- *Qualifier Plus III_{FX}* (#3430)
Two LR-44 batteries.
- *Qualifier Plus III_{FX} Desktop* (#43430)
One 3-Volt Lithium CR-2032 battery.

Replacing the Battery(ies)

Should your calculator display become very dim or erratic, replace the battery(ies).

Note: Please use caution when disposing of your old battery, as it contains hazardous chemicals.

Replacement batteries are available at most discount or electronics stores. You may also call Calculated Industries at 1-775-885-4975.

Battery Replacement Instructions

- *Qualifier Plus III_{FX}* (#3430)
To replace the batteries, slide open the battery door (at top backside of unit) and replace with new batteries. Make sure the batteries are facing positive side up.
- *Qualifier Plus III_{FX} Desktop* (#43430)
To replace the battery, use a small Phillips' head screwdriver and unscrew the two (2) screws on the base of the unit. Carefully remove the lower back housing. Remove the battery from the clip and replace it with a new battery, with the positive side up. Then replace the backplate and reattach the screws.



Repair and Return

Warranty, Repair and Return Information!

Return Guidelines:

1. Please read the **Warranty** in this User's Guide to determine if your Calculated Industries product remains under warranty **before** calling or returning any device for evaluation or repairs.
2. If your product won't turn on, check the batteries as outlined in the User's Guide.
3. If you need more assistance, please go to the website listed below.
4. If you believe you need to return your product, please call a Calculated Industries representative between the hours of 8:00a.m. to 4:00p.m. Pacific Time for additional information and a Return Merchandise Authorization (RMA).

Call Toll Free: 1-800-854-8075

Outside USA: 1-775-885-4900

www.calculated.com/warranty

Warranty

Warranty Repair Service – U.S.A.

Calculated Industries ("CI") warrants this product against defects in materials and workmanship for a period of **one (1) year from the date of original consumer purchase in the U.S.** If a defect exists during the warranty period, CI at its option will either repair (using new or remanufactured parts) or replace (with a new or remanufactured calculator) the product at no charge.

THE WARRANTY **WILL NOT APPLY** TO THE PRODUCT IF IT HAS BEEN DAMAGED BY MISUSE, ALTERATION, ACCIDENT, IMPROPER HANDLING OR OPERATION, OR IF UNAUTHORIZED REPAIRS ARE ATTEMPTED OR MADE. SOME EXAMPLES OF DAMAGES NOT COVERED BY WARRANTY INCLUDE, BUT ARE NOT LIMITED TO, BATTERY LEAKAGE, BENDING, BLACK "INK SPOT" OR VISIBLE CRACKING OF THE LCD, WHICH ARE PRESUMED TO BE DAMAGES RESULTING FROM MISUSE OR ABUSE.

To obtain warranty service in the U.S., please go to the website

A repaired or replacement product assumes the remaining warranty of the original product or 90 days, whichever is longer.

Non-Warranty Repair Service – U.S.A.

Non-warranty repair covers service beyond the warranty period, or service requested due to damage resulting from misuse or abuse.

Contact Calculated Industries at the number listed above to obtain current product repair information and charges. Repairs are guaranteed for 90 days.

Repair Service – Outside the U.S.A.

To obtain warranty or non-warranty repair service for goods purchased outside the U.S., contact the dealer through which you initially purchased the product. If you cannot reasonably have the product repaired in your area, you may contact CI to obtain current product repair information and charges, including freight and duties.

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