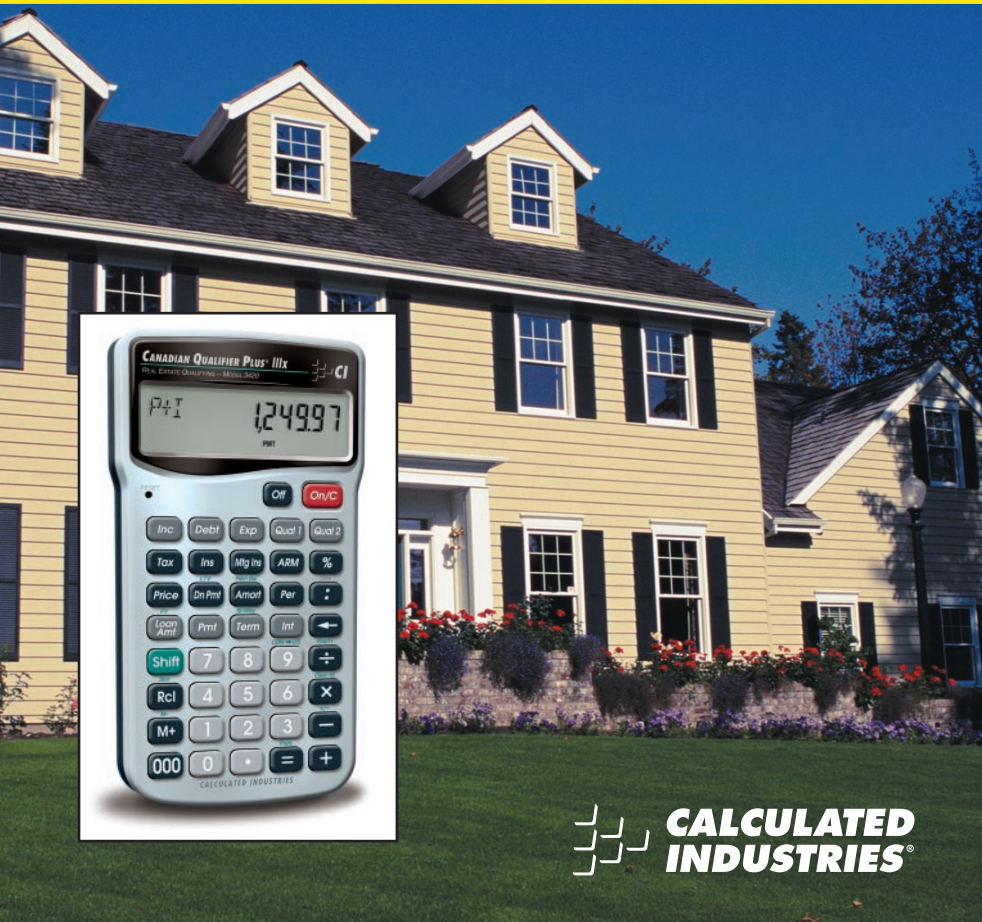
CANADIAN QUALIFIER PLUS® IIIx

PROFESSIOINAL RESIDENTIAL REAL ESTATE FINANCE CALCULATOR
with BUILT-IN CANADIAN INTEREST MODE

Model 3420

User's Guide



CALCULATED INDUSTRIES®

Introducing the CANADIAN QUALIFIER PLUS® IIIX Mortgage Calculator

The *Canadian Qualifier Plus IIIx* was designed specifically for mortgage lenders, residential real estate agents and brokers for quick mortgage calculations in the office or out in the field. It's the most complete and intuitive calculator of its kind. With the push of a few buttons, *it will instantly pre-qualify prospective buyers, find monthly payments, and solve hundreds of mortgage problems!*

Features:

- Easy and Complete Buyer Pre-Qualifying — with *"Smart" Keys* for quick financing solutions or comparisons
- Find Qualifying Mortgage Amount, Income Required and Maximum Allowable Debt
- Use two different Qualifying Ratios at once to compare mortgage scenarios
- Compare "Restricted" with "Unrestricted" Qualifying Mortgage Amount
- Flexible "what-if" Mortgage or TVM Calculations — *Finds Mortgage Amount, Term, Interest or Payment*
- Instant P&I and PITH Payment
- Includes Property Tax and Heating Expense
- Built-in Sales Price and Down Payment
- Instant Loan-to-Value (LTV)
- Works in Annual Term and Interest
- Works in Canadian or U.S. Interest
- Date Math, Month Offset, and Odd-Days Interest (ODI)
- Complete Amortization
- Remaining Balance/Balloon Payment
- Bi-Weekly Mortgages
- Trust Deeds
- Future Value and Appreciation
- Also works as a Standard Math Calculator
- ***U.S. Mode**, including additional features:* Adjustable Rate Mortgages (ARMs), APR and Total Finance Charges, PITI/Total Payment, Rent vs. Buy, Estimated Income Tax Deduction and Complete U.S. Buyer Pre-Qualifying, including Tax and Insurance

TABLE OF CONTENTS

KEY DEFINITIONS

Basic Operation Keys

Off — Turns all power off. The memory and most financial registers are cleared.

On/C — If calculator is off, turns power on. If calculator is on, a single press clears the last entry while a second press in succession clears non-permanent entries.

+ − × ÷ = — Arithmetic operation keys.

0 – **9** — Keys used for entering numbers.

000 — Triple-zero key (saves time when entering 000 values).

← — Backspace key (deletes incorrect entries one digit at a time).

• — Decimal point.

% — ***Percent*** — Four-function (+, –, x, ÷) percent key. See **page 22** for examples.

M+ — ***Memory*** — Adds the displayed number to the independent cumulative memory. Pressing **Shift** **M+** *(M–)* will subtract the displayed value from the cumulative memory. Pressing **Rcl** **M+** recalls and displays the memory contents. Pressing **Rcl** **Rcl** clears the memory. See **page 19** for details.

Rcl — ***Recall*** — Recalls and displays the contents of the financial registers (e.g., **Rcl** ***Int***). Also used for Memory functions.

Shift — Used to set the number of displayed decimal places (see section on Decimal Place Selection, **page 15**). Also works with other keys to set or activate additional functions. (Think of it as a “shift” key on a typewriter.) It will perform the function printed above the key on the calculator's face.

Shift **−** — ***Change Sign*** — Changes the sign of the displayed value from positive to negative or vice versa.

Shift ✕ ***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 the Appendix 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 74****).*

Canadian Mode: Shift ✕ will also return your calculator to Canadian Mode if you previously activated U.S. Mode via Shift 9.

Shift = ***Preferences*** — Activates the Preference Mode, where you can program custom settings (see **page 17**).

Mortgage / Time-Value-of-Money Keys

The following keys let you solve Mortgage or Time-Value-of-Money (TVM) problems, such as finding a Mortgage Payment, Term, Interest, or Future Value, or Amortization. Other useful keys, such as Price and Down Payment, are also included. These keys let you demonstrate various "what-if" mortgage scenarios to your clients.

Loan Amt ***Mortgage Amount*** — Enters or solves for the initial mortgage amount or present value of a financial problem.

Pmt ***P&I, PITH (Total Payment), and Interest-Only Payment*** — Multi-function payment key. Enters or solves for the Periodic Principal and Interest (P&I) payment. *(Optional)* Pressing a second time in succession calculates the PITI* payment *(adds monthly property tax only to P&I payment)*. Pressing a third time calculates the PITH* or Total Payment, which includes monthly property tax, heating expense, and other applicable housing expenses, such as condo fees. The last press calculates the interest-only payment.

**Note: The U.S. PITI payment includes monthly property tax and insurance. Also, the U.S. function does not require entering monthly heating expense, or use the term PITH.*

Term — Enters or solves for the number of years. Second press gives the number of periods. 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 ⊠). You may enter a periodic term, if you prefer, by pressing the Per key prior to pressing Term (e.g., 3 0 0 Per Term instead of 2 5 Term).

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*** — Enters or solves for the future value of a financial problem.

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

Note: An entered Sales Price will not normally change.

Dn Pmt — ***Down Payment*** — Enters (in either percent or dollars) or calculates Down Payment, based on the entries of Mortgage 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, Mortgage Amount/Down Payment, or Mortgage Amount/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% will calculate Down Payment and Mortgage Amount).

Per — ***Periodic*** — Used to specify a mortgage component (Term or Interest) or Amortization/Remaining Balance value as periodic rather than yearly. For example, 3 0 0 Per Term enters 300 periods. Also used to identify Periodic Income, Tax Insurance, and Mortgage Insurance.

Shift ÷ — ***Payments per Year*** — Used to set the number of payments 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 17****).*

Amort — ***Amortization (Amort)*** — Finds Total Interest, Principal, Remaining Balance, Remaining Term and (when in *U.S. Mode* only) 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	(U.S. Mode) 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" function/keys.

Shift Amort — ***Remaining Bal (Bal)*** — Displays the Remaining Balance when preceded by a single year or range of years (or individual payment or range of payments by also using the Per key). Note that you can also see the Remaining Balance by cycling through the Amort key.

. — ***Colon Separator (Date)*** — Used as a separator for entering dates, qualifying ratios, for entering amortization ranges and ARM 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*** — Calculates the pre-paid interest, or simple interest accumulated (based on a 360-day year) during the days before the first mortgage payment is made, using the interest rate stored in the Interest register.

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 exit Bi-Weekly mode and re-calculate to the original term, or pressing **On/C** twice will exit Bi-Weekly mode.

Qualifying Keys

What are Canadian Qualifying Ratios?

According to the Canadian Mortgage and Housing Corp. (CMHC), the first rule in Canadian qualifying is that monthly housing costs should not exceed 32% of gross monthly income (this is called the Gross Debt Service, or GDS ratio). Housing costs include monthly Principal and Interest, Property Taxes and heating expenses. If applicable, PITH can also include half the condominium fees and the annual site lease if it's a leasehold tenure.

The second qualifying rule is that the total monthly costs (i.e., monthly housing costs *plus* other long-term debt, such as car loans and credit card payments) shouldn't exceed 40% of gross monthly income (this is called the Total Debt Service, or TDS ratio).

Qual 1 ***(Qualify Based on GDS:TDS ratios of 32%-40%)*** — A multi-function key which, based on entered variables, performs the following pre-qualifying functions:

(Cont'd)

(Cont'd)

1) Stores Canadian GDS:TDS ratios for mortgage qualifying. Entered ratios are separated by the Colon ⁚ key. For example, income and debt ratios of 32% and 40%, respectively, are entered and permanently stored as follows: 3 2 ⁚ 4 0 Qual I. Default income and debt ratios for this key are 32% and 40%, respectively. You may change these ratios, if desired.

2) Calculates the maximum mortgage 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
- Down Payment
- Monthly Property Taxes
- Monthly heating expense and other monthly housing expenses, if applicable (e.g., condo fees)

The output of this key is as follows:

Press	Calculation
1	Displays stored Qualifying Ratios (e.g., 32%:40%)
2	Maximum Qualifying Mortgage Amount (restricted)*
3	Buyer's Actual Ratios (Income%:Debt%)
4	Unrestricted Qualifying Mortgage Amount*
5	Maximum Allowable Debt

**Note: The Maximum Qualifying Mortgage Amount is the "restricted" mortgage the buyer may qualify for. This mortgage amount is based on whichever of the two ratios – income or debt – limits the buyer the most. The Unrestricted Qualifying Mortgage Amount is the higher mortgage amount. It 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 mortgage amount. For this unrestricted mortgage 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 mortgage amount was based on (i.e., income or debt).*

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Note: This restricted/unrestricted qualifying mortgage 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 mortgage amount or sales price based on the stored income and debt qualifying ratios and the entered:

- Term
- Interest
- Price (down payment) or mortgage 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 2nd press calculates the buyer's actual ratios.

Note on U.S. Qualifying: If the calculator is in *Canadian Mode* (see **page 16**) and you want to qualify in *U.S. Mode*, activate U.S. Mode via **Shift** 9 and enter new U.S. Qualifying Ratios into the **Qual 1** and **Qual 2** keys.

Qual 2 ***(Qualify Based on 35%-42%)*** — Stores additional Income and Debt ratios and operates identically to the **Qual 1** key. Default Income and Debt ratios for this key are 35% and 42%, respectively.

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

Inc ***Income*** — Enters the buyer's *annual* income for mortgage qualifying. Or, enters a monthly income when preceded by the **Per** key (e.g., 5 **000** **Per** **Inc**).

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

Exp ***Expense*** — For Total or PITH Payment and Qualifying. Enters monthly heating or other housing expenses (e.g., condominium fees).

Tax

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

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

U.S. Keys (Used in U.S. Mode)

Note: Calculator must be set to U.S. Mode. See ***page 16****.*

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 ARM

Lifetime Interest Cap (ARMs) — 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 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 Mtg Ins 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 must enter a tax bracket, then press 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 ARM key definition for details).

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.

Shift +

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

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 6	**0.000000**
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 or until you change it using the commands above. You can select to permanently maintain your decimal place selection (remains even after you turn calculator off) by selecting "Hold Entry" for decimal settings under Preferences on ***page 17****.*

Canadian / U.S. Mode

Your calculator is factory-set to Canadian (Interest) Mode. If you need to calculate loan problems using U.S. interest, you must change the calculator to U.S. (Interest) Mode. To easily switch your calculator from Canadian Mode to U.S. Mode, press the Shift and then the 9 key.

Pressing Shift 9 also allows you to toggle between Canadian Interest and U.S. Interest calculations. In other words, you may switch from Canadian Interest to U.S. Interest, or vice-versa, by repeating the keystrokes Shift 9.

Note: While converting to Canadian Interest Mode via Shift 9, the letters "CDN" will appear in the upper left and will also be displayed when the Int key is pressed. While converting to U.S. Mode, the letters "USA" will appear, but there will be no "USA" label on the display when the Int key is pressed. If you're unsure what mode you're in, press Rcl Int to see if "CDN" is displayed.

Canadian Mode performs the following:

- Allows entry of Canadian interest rates.
- Disables selected U.S.-only functions (ARMS, APR, Rent vs. Buy and Tax Savings).

U.S. Mode performs the following:

- Allows entry of U.S. interest rates.
- Enables selected U.S.-only functions (ARMS, APR, Rent vs. Buy and Tax Savings).

Preference Settings

Your calculator has a Preference Mode, which allows you to program the calculator to various settings. For example, it allows you to 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 ⊕ sign to advance through the sub-settings.

To return the calculator to its default, or factory-set Preference Settings, perform a total Reset (see **page 74**).

***After* Shift, *Keep Pressing* ⊖:**	**Display**	**Description *(Press ⊕ to Advance within each category):***
1	**Decimal Places**	
	- DEC OFF 0.00 —	Clears decimal place setting/resets to 0.00 at Off. *(Default)*
	- DEC Hold Entry —	Permanently sets number of decimal places.
2	**Payments Per Year**	
	- P/Y OFF 12.00 —	Resets to 12.00 at Off. *(Default)*
	- P/Y Hold Entry —	Permanently sets pmts/year.
3	**Property Tax/Insurance (T/I)**	
	- Clr OFF TAX INS —	Clears all T/I (% and $) values at Off. *(Default)*
	- Hold Pct. TAX INS —	Holds only T/I percent (%) entries at Off.
	- Hold ALL TAX INS —	Holds all T/I (% and $) values at Off.
	- Clr Clr TAX INS —	Clears all T/I (% and $) values at double press of On/C (or On/C On/C).

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After Shift, Keep Pressing ⊖:	**Display**	**Description *(Press ⊕ to Advance within each category):***
4	**Mortgage Insurance (MI)—U.S. Only**	
	- 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.

MEMORY

Accumulative Memory M+

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 ⊠ *(Clear All).*

Examples:

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

Store 55, recall, and multiply by 40. Then multiply it by 60.

STEPS	KEYSTROKES	DISPLAY
Clear	On/C On/C	**0.00**
Store 55	5 5 M+	**M 55.00**
Multiply	⊠ 4 0 =	**M 2,200.00**
Recall 55	Rcl M+	**M 55.00**
Multiply	⊠ 6 0 =	**M 3,300.00**
Clear Memory	Rcl Rcl	**55.00**

Memory Storage Keys (M0-M6)

In addition to the standard cumulative Memory (as described above), your calculator has six independent Storage Registers — **[M0]** through **[M6]** — 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-M6	Shift Rcl 2, 3, 4, 5 or 6
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.

KEYSTROKE	DISPLAY
1 7 5 Shift Rcl 1	M-1 175.00
Off On/C	0.00
Rcl 1	M-1 175.00
1 5 0 Shift Rcl 1	M-1 150.00

Additional Memory Storage Keys (M10-M19)

In addition to M0-M6 (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 keystrokes: Shift Rcl • **[#]**, with **[#]** being digits 0 – 9. These Storage Registers operate identically to M0-M5.

Examples:

Store 250 into M10 and recall the value.

KEYSTROKE	DISPLAY
2 5 0 Shift Rcl • 0	**M-10 250.00**
Off On/C	**0.00**
Rcl • 0	**M-10 250.00**

Store 350 into M11 and recall the value.

KEYSTROKE	DISPLAY
3 5 0 Shift Rcl • 1	**M-11 350.00**
Off On/C	**0.00**
Rcl • 1	**M-11 350.00**

Note: Repeat the above procedure for registers 12-19, using digits 2 – 9.

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

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.

Percent Change

If a home's value increased from $315,000 (Present Value) to $350,000 (Future Value), what is the percent increase?

STEPS	KEYSTROKES	DISPLAY
Subtract appreciated value from the Present Value	350 000 − 315 000 =	**35,000.000**
Divide the difference by the Present Value	÷ 315 000 =	**0.11**
Calculate percent increase	× 100 =	**11.11** *(or 11.1%)*

Figuring Straight % Commission

The commission for the listing office is 3%. If the property sells for $157,900, what is the listing office's commission?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter sales price	1 5 7 9 0 0	**157,900.**
Multiply by commission %	× 3 % =	**4,737.00**

— 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 percent	× 5 0 % =	**2,368.50**

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 $198,000 home today, what would 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	1 9 8 000	**198,000.**
Add 6%	+ 6 %	**11,880.00**
Find appreciated value	=	**209,880.00**

*Note: See **page 41** for another example of future value or appreciation.*

USING THE DATE FUNCTION

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 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 September 19, 2004, what is the closing date and day?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter month	9 .	**9-**
Enter day	1 9 .	**9-19-**
Enter year	0 4	**9-19-04**
Add 45 days	+ 4 5 =	**WED 11-03-04**

Find the number of days to calculate prepaid interest due at closing, if the escrow closing date is 11/14/04 and the first payment is due 12/1/04.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter 1st payment date	1 2 . 1 . 0 4	**12-1-04**
Subtract closing date to find number of days	− 1 1 . 1 4 . 0 4 =	**17.00**

EXAMPLES — *CANADIAN MODE*

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

1. The financial functions — Mortgage Amount, Payment, Interest, Term — work just like you would say them. For example, if you wanted to borrow $100,000 for 25 years at 8% interest, just enter those three known variables and press the key for the unknown fourth variable: ***Payment*** 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 in memory.

5. While in Canadian Mode (default), the calculator will display "**CDN**" in the upper left of the display when the Int key is pressed.

6. The calculator's default setting is 12 payments per year, for monthly mortgages.

7. 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.

8. 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.

9. 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 the other data. This is handy for demonstrating various "what-if" mortgage problems.

10. Successive presses of the Pmt key will calculate:

1) the principal and interest (P&I) payment;
2) (optional) the PITI payment, which includes property tax;
3) the total payment/PITH (PITI plus monthly heating expense and other applicable expenses; and,
4) the interest-only payment.

(Cont'd)

(Cont'd)

IMPORTANT NOTE: All of the following examples can also be performed while the calculator is in U.S. Mode. See Canadian/U.S. Modes on **page 16**. Just be sure to change the term from 25 to 30 years, where applicable, and of course, the answers will change due to U.S. interest.

Additional U.S. examples are provided starting on **page 54**.

Finding the Monthly Mortgage Payment

Find the monthly payment on a 25-year fixed-rate mortgage of $165,000 at 7.5% annual interest.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Mortgage Amount	1 6 5 000* Loan Amt	**165,000.00**
Enter Term	2 5 Term	**25.00**
Enter Interest	7 • 5 Int	**7.50**
Find P&I monthly Payment	Pmt	**"run" 1,207.07**

What is the new payment if the interest rate is lowered to 7%?

STEPS	KEYSTROKES	DISPLAY
Enter new Interest rate	7 Int	**7.00**
Find P&I monthly Payment	Pmt	**"run" 1,155.69**

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

Finding the Term of a Mortgage

How long does it take to pay off a $55,000 mortgage at 7.25% interest, if you make payments of $750 each month?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Mortgage Amount	5 5 000 Loan Amt	**55,000.00**
Enter Interest	7 • 2 5 Int	**7.25**
Enter monthly P&I Payment	7 5 0 Pmt	**750.00**
Find Term in years	Term	**"run" 8.05**
Find periodic Term/Months	Term	**96.65**

Paying Off a Mortgage Early (Making Larger Payments)

How long does it take to pay off a 25-year fixed-rate mortgage of $150,000 at 7.25% 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 Mortgage Amount	1 5 0 000 Loan Amt	150,000.00
Enter Interest	7 • 2 5 Int	7.25
Enter Term	2 5 Term	25.00
Find P&I monthly Payment	Pmt	1,073.88
Add add'tl Payment amount	+ 2 0 0 =	1,273.88
Store as Payment	Pmt	1,273.88
Find reduced Term	Term	"run" 16.95

Finding the Interest Rate

Find the interest rate if the mortgage amount is $98,500, term is 25 years and payment is $765 a month.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Mortgage Amount	9 8 5 0 0 Loan Amt	98,500.00
Enter Term	2 5 Term	25.00
Enter monthly P&I Payment	7 6 5 Pmt	765.00
Find annual Interest	Int*	"run" 8.21
Find periodic Interest	Int	0.68

**Note: If desired, press Shift 9, and press Int, and repeat to toggle between Canadian Mortgage Interest and U.S. Interest modes. Display will read "CDN" when calculating Canadian interest, and "USA" for U.S. rates.*

Finding the Interest-Only Payment

Find the interest-only payment on a 5-year loan of $15,000 at 9% interest.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Loan Amount	1 5 000 Loan Amt	15,000.00
Enter Term	5 Term	5.00
Enter Interest	9 Int	9.00
Find monthly Interest-only Payment	Pmt Pmt Pmt Pmt*	"run" 110.45

**The fourth press of the Pmt key calculates the interest-only Payment.*

Finding the Mortgage Amount

Approximately how much could you borrow if the interest rate was 7.8% on a 25-year mortgage, 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 Interest	7 • 8 Int	**7.80**
Enter Term	2 5 Term	**25.00**
Enter monthly P&I Payment	1 5 0 0 Pmt	**1,500.00**
Find Mortgage	Loan Amt	**"run" 199,869.55**
Enter new Interest rate	7 • 5 Int	**7.50**
Find new Mortgage	Loan Amt	**"run" 205,042.71**

Non-Monthly Loans

Most mortgages are paid off monthly. 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 payment on a 10-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 4 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	1 2 Int	**12.00**
Find quarterly P&I Payment	Pmt	**"run" 644.36**
Reset to 12 Payments/year	1 2 Shift ÷	**"run" 12.00**

Bi-Weekly Loans

Your calculator includes a built-in 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 (since 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 these problems by setting up the initial monthly loan and then pressing Shift Term. A second press of Term 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 payments. A press of Pmt will calculate the Bi-Weekly payment.

Bi-Weekly Term Reduction and Payment

Find the monthly payment on a 25-year, $198,500 loan at 7.85% 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, total payments and the Bi-Weekly payment.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Loan Amount	1 9 8 5 0 0 Loan Amt	**198,500.00**
Enter Term in years	2 5 Term	**25.00**
Enter annual Interest	7 • 8 5 Int	**7.85**
Find monthly P&I Payment	Pmt	**"run" 1,496.02**
Find Bi-Weekly Term	Shift Term	**"run" 20.14**
Find total Interest savings	Term	**57,191.24**
Find total Interest paid	Term	**193,115.09**
Find total principal	Term	**198,500.00**
Find total Payments	Term	**391,615.09**
Find Bi-Weekly Payment	Pmt	**748.01**
Clear calculator	On/C On/C	**0.00**

Sales Price / Down Payment

One of the unique features of this calculator is its ability to work with not only Mortgage 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 Mortgage Amount). You may also enter the down payment in both percent or dollar format. For example, to enter 20%, enter 20 and press the DnPmt key (you do not have to label it as a percent). Or enter $20,000 (e.g., 2 0 000 DnPmt).

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

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

Finding Mortgage Amount Based on Sales Price and Down Payment

Find both the down payment dollar amount and mortgage amount if the sales price is $175,800 and you're planning to put 10% down.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter sales Price	1 7 5 8 0 0 Price	175,800.00
Enter Down Payment %	1 0 Dn Pmt	10.00
Find Down Payment $	Dn Pmt	17,580.00
Find Mortgage Amount	Loan Amt	158,220.00

Finding Sales Price and Payment Based on Loan Amount and Down Payment

Find a home's sales price if you've been approved for a $185,650, 25-year, 6.85% mortgage and you plan to put 15% down. Also find your monthly payment.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Mortgage Amount	1 8 5 6 5 0 Loan Amt	185,650.00
Enter Term	2 5 Term	25.00
Enter Interest	6 • 8 5 Int	6.85
Enter Down Payment %	1 5 Dn Pmt	15.00
Find Down Payment $	Dn Pmt	32,761.76
Find sales Price	Price	218,411.76
Find monthly P&I Payment	Pmt	"run" 1,283.17

Finding Loan-to-Value (LTV) Based on Down Payment and Sales Price

Find the Loan-to-Value if a buyer is putting $15,000 down on a $197,000 home. Then find the mortgage amount.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter sales Price	1 9 7 000 Price	197,000.00
Enter Down Payment $	1 5 000 Dn Pmt	15,000.00
Find Down Payment %	Dn Pmt	7.61
Find LTV	Dn Pmt	92.39
Find Mortgage Amount	Loan Amt	182,000.00

Setting Property Tax % Rate

Enter an annual property tax rate of 1.5%

STEPS	KEYSTROKES	DISPLAY
Set Tax rate	1 • 5 Tax	**1.50**
Clear display	On/C On/C	**0.00**
Recall Tax rate	Rcl Tax	**1.50**

Setting Property Tax $

Enter annual property taxes estimated at $2,500, then clear.

STEPS	KEYSTROKES	DISPLAY
Set annual Taxes	2 5 0 0 Tax	**2,500.00**
Clear Tax	0 Tax	**0.00**

PITH Payment (Including Heating Expense)

Find the PITH payment on a 25-year, 7.63% mortgage if the home's selling price is $178,000 and the down payment is 5%. Monthly heating cost is estimated at $150.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Term in years	2 5 Term	**25.00**
Enter annual Interest	7 • 6 3 Int	**7.63**
Enter sales Price	1 7 8 000 Price	**178,000.00**
Enter Down Payment	5 DnPmt	**5.00**
Add mo. heating Expense	1 5 0 Exp	**150.00**
Find Mortgage Amount	Loan Amt	**169,100.00**
Find P&I Payment	Pmt	**"run" 1,250.90**
Find PITH/total Payment	Pmt Pmt	**1,400.90**

PITH Payment (Including Heating Expense and Property Tax Entered as %)

Find the PITH payment on a 25-year, 7.63% mortgage if the home's selling price is $178,000 and the down payment is 5%. The annual property tax is estimated at 1.3% and the monthly heating cost is estimated at $150.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Term in years	2 5 Term	**25.00**
Enter annual Interest	7 • 6 3 Int	**7.63**
Enter sales Price	1 7 8 000 Price	**178,000.00**
Enter Down Payment	5 DnPmt	**5.00**
Set annual Tax rate	1 • 3 Tax	**1.30**
Find annual property Taxes	Tax	**2,314.00**
Add mo. heating Expense	1 5 0 Exp	**150.00**
Find Mortgage Amount	Loan Amt	**169,100.00**
Find P&I Payment	Pmt	**"run" 1,250.90**
Find PITI Payment*	Pmt	**1,443.73**
Find PITH/total Payment**	Pmt	**1,593.73**

**Adds monthly property tax to the monthly payment.*

***Note that PITH payment calculations are approximate and do not include monthly insurance premiums, sales taxes, or other applicable fees.*

PITH Payment (Including Heating Expense and Property Tax Entered as $)

Find the PITH payment on a 25-year, 7.25% mortgage if the home's selling price is $227,000 and the down payment is 35%. Local annual property tax is estimated at $2,270 (or 1% of the sales price). Monthly heating expense is $100.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Term in years	2 5 Term	25.00
Enter annual Interest	7 • 2 5 Int	7.25
Enter sales Price	2 2 7 000 Price	227,000.00
Enter Down Payment %	3 5 DnPmt	35.00
Find dollar $	DnPmt	79,450.00
Set Tax figure	2 2 7 0 Tax*	2,270.00
Add mo. heating Expense	1 0 0 Exp	100.00
Find Mortgage Amount	Loan Amt	147,550.00
Find P&I Payment	Pmt	"run" 1,056.34
Find PITH/total Payment	Pmt Pmt	1,345.50

**To view Tax rate in its monthly and percent forms, press the Tax key three times — e.g., press RCl Tax Tax Tax to recall the annual property tax, monthly property tax and percent (tax rate) of $2,270, $189.17 and 1.00%, respectively.*

PITH Payment and Interest-Only Payment

Find the total payment (including principal, interest, tax/insurance and monthly expenses) and the interest-only payment on a 25-year, 7% mortgage if the home's selling price is $189,000 and the down payment is 15%. The local annual property tax is estimated at $2,835 (or 1.5%), and monthly heating expense at $150.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Term in years	2 5 Term	30.00
Enter annual Interest	7 Int	7.00
Enter sales Price	1 8 9 000 Price	189,000.00
Enter Down Payment %	1 5 DnPmt	15.00
Find dollar $	DnPmt	28,350.00
Enter property Tax	2 8 3 5 Tax	2,835.00
Enter monthly Expenses	1 5 0 Exp	150.00
Find Mortgage Amount	Loan Amt	160,650.00
Find P&I Payment	Pmt	"run" 1,125.22
Find PITH (total) Payment	Pmt Pmt	1,511.47
Find Interest-only Payment	Pmt	923.74

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 mortgage, for an individual payment or individual year, or any range of payments or range of years, for fully or partially amortized mortgages.

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 Per 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 keyboard will alter the values (including the default settings) for range of payments calculations. It is therefore best to specify a range of payments or 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.
6. If the first payment of a mortgage begins in a month other than January, you can set that month by using the Month Offset function. The default for this setting is 1 (for January). To change the start month, press the month number, then the Shift and 000 keys. This allows you to calculate the correct number of periods in the amortization range. For example, if the first payment of a mortgage begins in April, the value stored in the month offset would be 4 (4 Shift 000). If requesting amortization values for year one (1 Amort), the amortization of periods 1-9 would be displayed. Year two (2 Shift) would display values for periods 10-21. Turning your calculator off and back on returns the Month Offset to 1 (January).

(Cont’d)

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

7. ***(U.S. Mode Only)*** 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 % 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 25-Year Mortgage

How much total interest will you pay on a $200,000 mortgage at 7.5% interest over 25 years? What is the total principal and interest paid?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Mortgage Amount	2 0 0 000 Loan Amt	**200,000.00**
Enter Interest	7 • 5 Int	**7.50**
Enter Term	2 5 Term	**25.00**
Find monthly P&I Payment	Pmt	**"run" 1,463.11**
Find total # of Payments	Amort	**"run" 1-300**
Find total Interest paid	Amort	**238,932.95**
Find total Principal paid	Amort	**200,000.00**
Find total Principal/Interest	Amort	**438,932.95**

Amortization List for Individual Year(s) — *Using "Next" Feature*

How much total interest and principal will you pay on a 25-year, $90,000 mortgage at 8% interest during the first year? The second year? Third year, etc.? First, find monthly payment to "set-up" this mortgage. The calculator will automatically advance to the next year upon subsequent presses of Amort.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Mortgage Amount	9 0 000 Loan Amt	**90,000.00**
Enter Interest	8 Int	**8.00**
Enter Term	2 5 Term	**25.00**
Find monthly P&I Payment	Pmt	**"run" 686.89**
Enter Year 1	1 Amort	**"run" 1-12**
Find total Interest in Year 1	Amort	**7,040.09**
Find total Principal in Year 1	Amort	**1,202.62**
Find Prin./Interest in Year 1	Amort	**8,242.71**
Find Remaining Balance	Amort	**88,797.38**
Find Remaining Term	Amort	**24.00**
Display next year (Year 2)	Amort	**"run" 13-24**
Find total Interest in Year 2	Amort	**6,941.95**
Find total Principal in Year 2	Amort	**1,300.75**
Find Prin./Interest in Year 2	Amort	**8,242.71**
Find Remaining Balance	Amort	**87,496.63**
Find Remaining Term	Amort	**23.00**
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 mortgage begins in May. How much total interest and principal will you pay on a 25-year, $90,000 mortgage at 8% interest during the first year? The second year? Third year, etc.? (First find monthly payment to "set-up" this mortgage.)

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Set Month Offset to May	5 Shift 000	**5.00**
Enter Mortgage Amount	9 0 000 Loan Amt	**90,000.00**
Enter Interest	8 Int	**8.00**
Enter Term	2 5 Term	**25.00**
Find monthly P&I Payment	Pmt	**"run" 686.89**
Enter Year 1	1 Amort	**"run" 1-8**
Find total Interest in Year 1	Amort	**4,703.92**
Find total Principal in Year 1	Amort	**791.22**
Find Prin./Interest in Year 1	Amort	**5,495.14**
Find Remaining Balance	Amort	**89,208.78**
Find Remaining Term	Amort	**24.33**
Display next year (Year 2)	Amort	**"run" 9-20**
(etc. — sequence repeats for each year)		
Return Mo. Offset to 1*	1 Shift 000	**1.00**

**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 mortgage at 6.85% interest for 25 years, find out how much interest and how much principal you'll pay in the first and second payments.

Note: Use the Per key to label the payments.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Mortgage Amount	1 7 5 000 Loan Amt	**175,000.00**
Enter Interest	6 • 8 5 Int	**6.85**
Enter Term	2 5 Term	**25.00**
Find monthly P&I Payment	Pmt	**"run" 1,209.56**
Enter Payment #1	1 Per Amort	**"run" 1-1**
Find Interest in Pmt #1	Amort	**984.99**
Find Principal in Pmt #1	Amort	**224.57**
Find Prin./Int. in Pmt #1	Amort	**1,209.56**
Find Rem. Bal. in Pmt #1	Amort	**174,775.43**
Find Rem. Term in Pmt #1	Amort	**24.92**
Display Payment #2	Amort	**"run" 2-2**

(etc. — sequence repeats for each payment)

— DO NOT CLEAR CALCULATOR —

For the same mortgage, 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 Per Amort	**"run" 36-36**
Find Interest in Pmt #36	Amort	**936.25**
Find Principal in Pmt #36	Amort	**273.32**
Find Prin./Int. Pmt #36	Amort	**1,209.56***
Find Remaining Balance	Amort	**166,065.90**
Find Remaining Term	Amort	**22.00**

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

Amortization List for a Range of Payments or Years

For a $225,000, 25-year mortgage at 7.4% interest, find out how much interest and principal you'll pay in payments 1-9, and then for years 1-10.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Mortgage Amount	2 2 5 000 Loan Amt	225,000.00
Enter Interest	7 • 4 Int	7.40
Enter Term	2 5 Term	25.00
Find monthly Payment	Pmt	"run" 1,631.89
Enter Payments #1-9	1 : 9 Per Amort	"run" 1-9
Find Interest	Amort	12,240.39
Find Principal	Amort	2,446.63
Find Principal and Interest	Amort	14,687.01
Find Remaining Balance	Amort	222,553.37
Find Remaining Term	Amort	24.25
Enter Years #1-10	1 : 1 0 Amort	"run" 1-120
Find Interest	Amort	149,169.59
Find Principal	Amort	46,657.27
Total Principal and Interest	Amort	195,826.85
Find Remaining Balance	Amort	178,342.73
Find Remaining Term	Amort	15.00

Balloon Payment / Remaining Balance Needed to Pay Off a Mortgage

You're looking at a new home with the following financing available: loan amount $225,000 at 6.75% amortized over 25 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 Mortgage Amount	2 2 5 000 Loan Amt	225,000.00
Enter Interest	6 • 7 5 Int	6.75
Enter Term	2 5 Term	30.00
Find monthly P&I Payment	Pmt	"run" 1,541.36
Find Balloon/Remaining Balance after 10 years	1 0 Shift Amort	"run" 175,202.35

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 $210,000 and want to know what it will be worth in 3 years, figuring an inflation or appreciation rate of 6%. (Set periods to one per year.)

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Set to 1 Payment/year	1 Shift ÷	**1.00**
Enter Present Value	2 1 0 000 Loan Amt	**210,000.00**
Enter Term in years	3 Term	**3.00**
Enter Appreciation rate	6 Int	**6.00**
Find Future Value	Shift Loan Amt	**"run" 250,750.98**
Return to 12 Payments/year	1 2 Shift ÷	**12.00**

Basic Savings Account Problem (Future Value of an Initial Deposit)

What is the future value of an initial deposit of $15,000 after 5 years, if interest is compounded monthly and the interest rate is 3%?

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Recall Payments/year*	Rcl ÷	**12.00**
Enter savings deposit into Loan Amount (Present Value)	1 5 000 Loan Amt	**15,000.00**
Enter Interest rate	3 Int	**3.00**
Enter Term in years	5 Term	**5.00**
Find Future Value	Shift Loan Amt	**17,408.11**

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

Note: This calculator will not handle savings/investment problems involving cash flows or selecting between beg/end periods, only simple future value problems where there is an initial deposit, as shown above.

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, based 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	1 5 Term	**15.00**
Enter Payment Amount	1 0 0 Pmt	**100.00**
Find purchase Price	Loan Amt	**"run" 4,896.97**

— DO NOT CLEAR CALCULATOR —

What if you want a 30% yield? Leave all of the above data and re-enter the 30% interest over the old rate, then re-calculate the loan amount.

STEPS	KEYSTROKES	DISPLAY
Enter your new desired Rate of Return	3 0 Int	**30.00**
Find purchase Price	Loan Amt	**"run" 4,179.12**

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	5 Term	**5.00**
Enter Payment Amount	6 2 • 5 0 Pmt	**62.50**
Find your Yield	Int	**"run" 14.09**

— 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" 5,663.44**

BUYER PRE-QUALIFYING

The Qualifying keys on your calculator let you instantly pre-qualify prospective buyers. Mortgage lending pros will find these keys useful for doing instant mortgage pre-qualifications on the phone or in front of clients. Real estate agents/brokers can 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) Mortgage Amount Available given buyer's income and debt;
2) Income Required given mortgage amount (or price/down payment); and
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 mortgage scenarios based on different qualifying ratios. The Qual 1 key defaults to GDS:TDS Income and Debt Ratios of 32% and 40%. The Qual 2 key defaults to GDS:TDS Ratios of 35% and 42%. However, you may store any ratios you want into these keys, or change the ratios at any time.

3. A calculated Qualifying Mortgage Amount is automatically stored in the Mortgage Amount Loan Amt register, replacing any existing Mortgage Amount value. This lets you instantly proceed to monthly payment calculations, etc.

4. When calculating Qualifying Mortgage 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 mortgage amount (used in mortgage approval);
   - the third press in succession will show the buyer's actual income and debt ratios;

(Cont'd)

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- the fourth press will display the higher, "unrestricted" qualifying mortgage amount (for comparison purposes); 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 17***.

5. When calculating Annual Income Required (based on entered mortgage 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., mortgage 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 may use the **Exp** and **Tax** keys as additional variables affecting buyer qualifying (and PITH payments). Property tax is calculated from the Sales Price.

IMPORTANT NOTE: U.S. versus Canadian Payment and Qualifying Calculations

It is important to note that U.S. and Canadian payment and pre-qualifying methods differ and are thus reflected in the examples in this User's Guide. In the U.S., property insurance ("Insurance") and mortgage insurance* are included with property tax for the calculation of the "PITI" and total payment, and are also included as factors affecting Buyer Qualifying. In Canada, Insurance is not included in the calculation of PITH (i.e., PITH typically adds only the monthly property tax and heating expense to the P&I payment. Canadian Qualifying also does not include Insurance.

**In the U.S., mortgage insurance only applies if buyers have a low down payment (under 20%).*

QUALIFYING EXAMPLES

Most of the examples in this section will be based on the default GDS:TDS Income and Debt Ratios of 32% and 40%, respectively, which are stored in the Qual 1 key.

Recalling GDS / TDS Qualifying Ratios

Recall stored 32%-40% and 35%-42% ratios:

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Recall Qualifying Ratios 1	Rcl Qual 1	**32.00-40.00**
Recall Qualifying Ratios 2	Rcl Qual 2	**35.00-42.00**

Storing New GDS / TDS 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 32:40*	3 2 . 4 0 Qual 1	**32.00-40.00**

**Note: Your ratios will be permanently stored, or will remain even after your calculator is turned off. You must enter new ratios to restore your calculator to the default ratios of 32:40 and 35:42.*

Finding Qualifying Mortgage Amount and Sales Price (Simple Example Excluding Property Tax)

Given an interest rate of 7.5%, a term of 25 years, and the stored 32%:40% qualifying ratios, for what size mortgage and what sales price can a buyer pre-qualify for, if he or she makes $45,000 annually and has $350 in long-term, monthly debt? The buyer plans to put $10,000 down. Also, what is the monthly (P & I) payment? *(Based on no Tax.)*

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Term in years	2 5 Term	**25.00**
Enter annual Interest	7 • 5 Int	**7.50**
Clear Tax rate*	0 Tax	**0.00**
Enter annual Income	4 5 000 Inc	**45,000.00**
Enter monthly Debt	3 5 0 Debt	**350.00**
Enter Down Payment	1 0 000 DnPmt	**10,000.00**
Display Qualifying Ratios	Qual I	**32.00-40.00**
Find pre-qualifying Mortgage Amount	Qual I	**"run" 157,199.41**
Find Price	Price	**167,199.41**
Find monthly P&I Payment	Pmt	**1,150.00**

Note: If you previously entered Property Tax, you must set this key to zero, as your calculator automatically stores the % rates semi-permanently (unless you set them to clear upon On/C On/C via the Preference Settings – see* ***page 17**).*

— DO NOT CLEAR CALCULATOR —

Re-qualify this buyer assuming lower debt ($200/mo). *(Notice they now qualify for a larger mortgage and sales price.)*

STEPS	KEYSTROKES	DISPLAY
Enter new monthly Debt	2 0 0 Debt	**200.00**
Display Qualifying Ratios	Qual I	**32.00-40.00**
Find new pre-qualifying Mortgage Amount	Qual I	**"run" 164,034.17**
Find new Price	Price	**174,034.17**
Find monthly P&I Payment	Pmt	**1,200.00**

Qualifying Mortgage Amount and Sales Price (Including Down Payment, Property Tax and Monthly Heating/Condo Fees)

The same buyers as in the previous example (who make $45,000 annually and have $200 in long-term monthly debt) wish to buy a lower-priced condo, but can only afford $7,500 down. If you include estimated annual property tax of 1.5% and other housing expenses of $150 ($100 for heating, $50 for monthly condo fees), for what mortgage amount can they now pre-qualify? What sales price can they afford? What's their PITH or total payment? *(Again, using previously stored 7.5% interest, 25-year term and qualifying ratios of 32%:40%; 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	4 5 000 Inc	45,000.00
Enter monthly Debt	2 0 0 Debt	200.00
Enter Down Payment	7 5 0 0 DnPmt	7,500.00
Set annual prop. Tax rate	1 • 5 Tax	1.50
Enter housing Expense	1 5 0 Exp	150.00
Recall Interest*	Rcl Int	7.50
Recall Term*	Rcl Term	25.00
Display Qualifying Ratios	Qual 1	32.00-40.00
Find pre-qualifying Mortgage Amount	Qual 1	"run" 121,489.58
Find Price	Price	128,989.58

— DO NOT CLEAR CALCULATOR —

Now find the monthly P&I payment (Principal & Interest), PITI payment (Principal, Interest, and Property Tax) and PITH/Total Payment (PITI plus monthly heating and condo fees):

STEPS	KEYSTROKES	DISPLAY
Find P&I Payment	Pmt	"run" 888.76
Find PITI Payment**	Pmt	1,050.00
Find PITH/total Payment	Pmt	1,200.00

**Re-enter interest and term if you are not continuing from the previous example.*

***Adds monthly property tax to the monthly payment. Insurance is not included for Canadian payment calculations.*

"Restricted" Qualifying

Buyers who make $45,000 annually and have $75 in long-term monthly debt wish to buy a home offered at $165,000. They will put 15% down. Will they qualify? For what maximum mortgage amount can they qualify? *(Use previously stored 7.5% interest and 25-year term, tax rate of 1.5%, monthly heating expense of $100, and qualifying ratios of 32%:40).*

Note: If you aren't continuing from the previous problem, you'll need to re-enter interest, term, and property tax.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter annual Income	4 5 000 Inc	**45,000.00**
Enter monthly Debt	7 5 Debt	**75.00**
Enter mo. heating cost	1 0 0 Exp	**100.00**
Recall Interest	Rcl Int	**7.50**
Recall Term	Rcl Term	**25.00**
Recall annual prop. Tax rate	Rcl Tax	**1.50**
Enter Down Payment	1 5 Dn Pmt	**25.00**
Display Qualifying Ratios	Qual 1	**32.00-40.00**
Find "restricted" Qualifying Mortgage Amount	Qual 1	**"run" 125,197.22**
Find sales Price	Price	**147,290.85**
Find $ Down Payment	Dn Pmt Dn Pmt	**22,093.63**
Find PITH/total Payment	Pmt Pmt Pmt	**1,200.00**

— DO NOT CLEAR CALCULATOR —

(Cont'd)

(Cont'd)

"Unrestricted" Qualifying

The amount calculated above is the "restricted" mortgage they may qualify for, based on current income and debt. What are the buyer's actual income and debt ratios? What is the "unrestricted" mortgage amount? What side is the "restricted" mortgage based on (income or debt)? What is the total allowable monthly debt?

STEPS	KEYSTROKES	DISPLAY
Find actual Ratios	Qual I Qual I Qual I	"run" 32.00-34.00*
Find "unrestricted" Mortgage Amount	Qual I	UNR 150,805.75 LA DEBT**
Find maximum allowable Debt	Qual I	ALW 300.00 MO DEBT*
Clear Tax register	0 Tax	0.00

**The unrestricted debt ratio was only 34% (did not reach TDS ratio of 40%). Maximum allowable debt limited by these ratios is $300, meaning the buyers could have $300/month in long-term debt and still qualify for a lower-priced $147,000 home.*

***The "UNR" in the top of the display and "DEBT" in the lower right tells you this unrestricted Mortgage Amount is based on the buyer's Debt Ratio — therefore, the restricted Qualifying Mortgage Amount is based on the buyer's Income Ratio.*

The restricted Qualifying Mortgage Amount is based on the ratio (income or debt) that limits the buyer the most — in this case it was income (i.e., monthly income of $3,750 multiplied by 32% allows a total payment of only $1,200). This means the buyers need to make more income to qualify for a larger loan, if they want to purchase a higher-priced home. In other words, they do not currently qualify for the desired $165,000 home because their current income is slightly too low. If they increase their income only $5K annually to $50,000/year, they'd qualify for a $140,000 mortgage (versus $125K) and may look at homes priced at around $165K.

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

Given a buyer's annual income of $45,000, $150 in long-term monthly debt, a 10% down payment, monthly heating expense of $75, an interest rate of 7.25% and term of 25 years, what mortgage amounts can they qualify for based on both 32%:40% and 35%:42% ratios? Also, find the corresponding total monthly PITH payment for each. Estimate property taxes at 1.25%.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter annual Income	4 5 000 Inc	45,000.00
Enter monthly Debt	1 5 0 Debt	150.00
Enter mo. heating Expense	7 5 Exp	75.00
Enter Interest	7 • 2 5 Int	7.25
Enter Term	2 5 Term	25.00
Enter Down Payment %	1 0 DnPmt	10.00
Enter property Tax rate	1 • 2 5 Tax	1.25
Display Qual 1 stored Ratios	Qual 1	32.00-40.00
Find Qual 1 Qualifying Mortgage	Qual 1	"run" 135,271.72
Find Price	Price	150,301.91
Find Qual 1 P&I Payment	Pmt	968.44
Find Qual 1 PITH Payment	Pmt Pmt	1,200.00

— DO NOT CLEAR CALCULATOR —

STEPS	KEYSTROKES	DISPLAY
Display Qual 2 stored Ratios	Qual 2	35.00-42.00
Find Qual 2 Qualifying Mortgage	Qual 2	"run" 148,798.89
Find Price	Price	165,332.10
Find Qual 2 P&I Payment	Pmt	1,065.28
Find Qual 2 PITH Payment	Pmt Pmt	1,312.50

Finding Income Required and Allowable Monthly Debt

Using the 32%:40% ratios, how much income would a buyer need to finance a $180,000 home, if they put 35% down? What is the maximum allowable debt? What is the dollar down payment and mortgage amount? What is the monthly payment? Use 7.05% interest for 25 years. Estimate property tax rate at 1.5% and $80 for monthly heating expense.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter annual Interest	7 • 0 5 Int	**7.05**
Enter Term in years	2 5 Term	**25.00**
Enter Tax rate	1 • 5 Tax	**1.50**
Enter mo. heating Expense	8 0 Exp	**80.00**
Enter sales Price	1 8 0 000 Price	**180,000.00**
Enter Down Payment %	3 5 DnPmt	**35.00**
Find Down Payment $	DnPmt	**63,000.00**
Find Mortgage Amount	Loan Amt	**117,000.00**
Display Qualifying Ratios	Qual 1	**32.00-40.00**
Find Income required	Qual 1	**“run” 42,303.80**
Find maximum allowable monthly Debt	Qual 1	**“run” 282.03**
Find P&I Payment	Pmt	**823.10**
Find PITH Payment	Pmt Pmt	**“run” 1,128.10**

Solving for Actual Qualifying Ratios

A buyer who makes $60,000 per year and has $350 in long-term monthly debt wants to borrow $100,000 to purchase a home. He has $55,000 down payment and annual property tax is estimated at 1.4%. Monthly housing expenses are estimated at $150. Use 7.5% interest for 25 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 Interest	7 • 5 Int	**7.50**
Enter Term	2 5 Term	**25.00**
Enter Mortgage Amount	1 0 0 000 Loan Amt	**100,000.00**
Enter annual Income	6 0 000 Inc	**60,000.00**
Enter monthly Debt	3 5 0 Debt	**350.00**
Enter Down Payment	5 5 000 Dn Pmt	**55,000.00**
Enter property Tax rate	1 • 4 Tax	**1.40**
Enter mo. housing Expense	1 5 0 Exp	**150.00**
Display stored Ratios	Qual I	**32.00-40.00**
Calculate actual Ratios	Qual I	**"run" 21.25-28.25**
Find sales Price	Price	**155,000.00**
Find P&I Payment	Pmt	**731.55**
Find total/PITH Payment	Pmt Pmt	**1,062.39**

EXAMPLES — *U.S. MODE*

Finding the Monthly Loan Payment (Based on U.S. Interest Rate)

IMPORTANT NOTE: Your calculator must be in U.S. Mode to complete the following examples. If it isn't, press Shift 9. Also, when returning to Canadian examples, be sure to return to Canadian Mode by pressing Shift 9 again.

Find the monthly payment on a 30-year loan of $215,000 at 7.5% annual U.S. interest.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Loan Amount	2 1 5 000 Loan Amt	**215,000.00**
Enter Term in years	3 0 Term	**30.00**
Enter annual Interest rate	7 • 5 Int	**7.50**
Find monthly P&I Payment	Pmt	**"run" 1,503.31**

Property Taxes, Property / Hazard Insurance and Monthly Housing Expense

Your calculator has keys that store estimated local annual Property Tax, Property Insurance and Mortgage Insurance (if applicable), and monthly estimated housing expense. This allows you to calculate the PITI (Principal, Interest, Tax and Insurance) payment and Total Payment (PITI plus Mo. Expenses), in addition to the regular P&I payment.

Note: As an optional step, you may also enter monthly expenses, such as utilities, maintenance or homeowner's association dues, into the Exp Expense key.

Entered Property Tax and Insurance values are semi-permanent. This means that they do not clear upon pressing the On/C key, but are deleted when you turn the calculator off. You can use the Preference Settings (Shift =), however, to set the calculator to hold Tax and Insurance (% and $) values when the calculator is turned off (see **page 17**).

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 Mortgage 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 Mortgage Amount to be correct. Entering values less than ten are assumed to be annual percentage rates.

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 Mortgage/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% mortgage), in which case the Tax and Insurance rates will be based on the Loan Amount value entered.

PITI Payment (Tax and Insurance Entered as %)

Find the PITI payment on a 30-year, 8.4% loan if the home's selling price is $125,000 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	8 • 4 Int	8.40
Enter sales Price	1 2 5 000 Price	125,000.00
Enter Down Payment	5 Dn Pmt	5.00
Set Tax rate	1 • 3 Tax	1.30
Set property Insurance rate	• 2 5 Ins	0.25
Set Mortgage Insurance rate	• 4 5 Mtg Ins	0.45
Find Loan Amount	Loan Amt	118,750.00
Find P&I Payment	Pmt	"run" 904.68
Find PITI Payment	Pmt	1,110.67

PITI Payment (Tax and Insurance Entered as $)

Find the PITI payment on a 30-year, 7.25% loan if the home's selling price is $311,000 and the down payment is 20%. Local annual property taxes are estimated at $5,900 and property insurance at $370.

Note: PMI or mortgage insurance is not included in this case, as the down payment is 20%.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	0.00
Enter Term in years	3 0 Term	30.00
Enter annual Interest	7 • 2 5 Int	7.25
Enter sales Price	3 1 1 000 Price	311,000.00
Enter Down Payment %	2 0 Dn Pmt	20.00
Find dollar $	Dn Pmt	62,200.00
Set Tax figure	5 9 0 0 Tax*	5,900.00
Set Insurance figure	3 7 0 Ins	370.00
Set Mortgage Ins. to zero	0 Mtg Ins	0.00
Find Loan Amount	Loan Amt	248,800.00
Find P&I Payment	Pmt	"run" 1,697.25
Find PITI Payment	Pmt	2,219.75

**Note: To view Tax/Insurance rates in their monthly and percent forms, press the Tax or Ins key three times — e.g., press Rcl Tax Tax Tax to recall the annual property tax, monthly property tax and % tax rate of $5,900, $491.67 and 1.9%, respectively.*

Calculating Tax and Insurance % or $

If loan variables are entered in addition to tax and insurance percentage rates or dollar values, the respective Tax/Insurance dollar values or percentage rates can be viewed 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 0.75%. Then enter a sales price of $250,000, 25% down, a term of 25 years and an interest rate of 8%. Calculate the loan, monthly payments and annual tax and insurance dollar amounts, or premiums.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Set Tax rate	1 • 5 Tax	**1.50**
Set Insurance rate	• 2 5 Ins	**0.25**
Set Mortgage Ins. rate	• 7 5 Mtg Ins	**0.75**
Enter Price	2 5 0 000 Price	**250,000.00**
Enter Down Payment %	2 5 Dn Pmt	**25.00**
Enter Term	3 0 Term	**30.00**
Enter Interest	8 Int	**8.00**
Find Mortgage Amount	Loan Amt	**187,500.00**
Recall property Tax %	Rcl Tax	**1.50**
Calculate property Tax $	Tax	**3,750.00**
Recall property Ins. %	Rcl Ins	**0.25**
Calculate property Ins. $	Ins	**625.00**
Recall Mortgage Ins. %	Rcl Mtg Ins	**0.75**
Calculate Mortgage Ins. $	Mtg Ins	**1,406.25**
Find P&I Payment	Pmt	**"run" 1,375.81**
Find PITI Payment	Pmt	**"run" 1,857.58**

Note: The same procedure can be performed to find the opposite — that is, find the respective % rates based on entered annual dollar amounts or insurance premiums. Simply enter the $ amounts and mortgage variables first, and the second press of the respective key will calculate the percentage rate.

Finding the Interest Rate

Find the interest rate if the mortgage is $98,500, term is 30 years and 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	Int	"run" 13.78
Find periodic Interest	Int	1.15

Finding the Term of a Loan

How long does it take to pay off a $15,000 loan 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

Finding the Loan Amount

Approximately how much could you borrow if the interest rate was 7.8% on a 30-year mortgage 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 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 Sales Price and Payment Based on Loan Amount and Down Payment

Find a home's sales price if you've been approved for a $200,000, 30-year, 7.5% mortgage and you plan to put 20% down. Also find your monthly payment.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Loan Amount	2 0 0 000 Loan Amt	**200,000.00**
Enter Term in years	3 0 Term	**30.00**
Enter annual Interest rate	7 • 5 Int	**7.50**
Enter Down Payment %	2 0 Dn Pmt	**20.00**
Find sales Price	Price	**250,000.00**
Find monthly P&I Payment	Pmt	**"run" 1,398.43**

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 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 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 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 1,445.79**
Find 2nd adjusted (3rd year) ARM Payment	ARM	**2 1,570.86***
Find principal at start of 3rd year	Rcl Loan Amt	**173,350.16**
Recall current Interest rate	Rcl Int	**10.25**
Recall 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 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 Prin. at start of year	Rcl Loan Amt	170,198.79
Recall current Interest rate	Rcl Int	12.25
Recall Remaining Term	Rcl Term	25.00
Reset 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.*

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 Payment	Pmt	"run" 1,610.46
Enter 1st ARM adjustment	1 : • 5 ARM	1.00 - 0.50
Find higher ARM Payment	ARM	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

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

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 monthly 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 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 Prin./Interest in Year 1	Amort	**7,924.66**
Find Remaining Balance	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 Prin./Interest in Year 2	Amort	**7,924.66**
Find Remaining Balance	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)

APR, Total Finance Charges (Including Mortgage Insurance)

You are financing a mortgage of $275,000 for 30 years at a nominal or quoted rate of 6.25% interest. The cost of getting the loan is quoted as 1.5 points plus $550 in fees. What is the APR (including Mortgage Insurance), total finance charges, principal amount financed, total cost, P&I payment, monthly Mortgage Insurance, and PIMI payment? Mortgage Insurance is estimated at 0.65% of the loan amount.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Loan Amount	2 7 5 000 Loan Amt	**275,000.00**
Enter Interest	6 • 2 5 Int	**6.25**
Enter Term	3 0 Term	**30.00**
Find monthly Payment	Pmt	**"run" 1,693.22**
Enter Mortgage Ins. %	• 6 5 Mtg Ins	**0.65**
Find Loan Costs:		
Recall Loan Amount	Rcl Loan Amt	**275,000.00**
Find point cost	× 1 • 5 % =	**4,125.00**
Add fees and find total	+ 5 5 0 =	**4,675.00**
Find APR*	Shift Int	**"run" 7.24**
Find finance charges (including Mortgage Insurance* and total Interest paid)	Int	**392,860.03**
Find amount financed (Principal minus pts/fees)	Int	**270,325.00**
Find total finance charges plus amount financed	Int	**663,185.03**
P&I Payment	Int	**1,693.22**
Mo. Mortgage Insurance	Int	**148.96**
PIMI Payment**	Int	**1,842.18**

**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.*

***Payment includes estimated monthly Mortgage Insurance.*

Bi-Weekly Loans

Your calculator includes a built-in 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 (since 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 these problems by setting up the initial monthly loan and then pressing Shift Term. A second press of Term 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 payments. A press of Pmt will calculate the Bi-weekly Payment.

Bi-Weekly Term Reduction and Payment

Find the monthly payment on a 30-year, $212,500 loan at 7.85% 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, total payments and the Bi-Weekly payment.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Loan Amount	2 1 2 5 0 0 Loan Amt	**212,500.00**
Enter Term in years	3 0 Term	**30.00**
Enter annual Interest	7 • 8 5 Int	**7.85**
Find monthly P&I Payment	Pmt	**"run" 1,537.09**
Find Bi-Weekly Term	Shift Term	**"run" 22.97**
Find total Interest savings	Term	**94,305.23**
Find total Interest paid	Term	**246,545.97**
Find total Principal	Term	**212,500.00**
Find total Payments	Term	**459,045.97**
Find Bi-Weekly Payment	Pmt	**768.54**
Clear calculator	On/C On/C	**0.00**

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 calculation 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	8 Int	8.00
Enter annual prop. Tax	1 5 0 0 Tax	1,500.00
Enter annual prop. Ins.	2 5 0 Ins	250.00
Enter Loan Amount	1 5 0 000 Loan Amt	150,000.00
Find P&I Payment	Pmt	"run" 1,100.65
Find PITI Payment	Pmt	1,246.48
Enter Tax bracket	2 8 Shift Pmt	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

— DO NOT CLEAR CALCULATOR —

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

STEPS	KEYSTROKES	DISPLAY
Set Mo. 1 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 Mo. Offset to Jan.	1 Shift 000	1.00

Mortgage Interest Tax Deduction — *28% or 30% Tax Bracket*

What is the Mortgage Interest Tax deduction for the first year (if loan starts in January*) on a $310,000, 30-year loan at 7.25% interest? Base it on 28% tax bracket (default). Then, recalculate based on a 30% tax bracket.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Enter Loan Amount	3 1 0 000 Loan Amt	**310,000.00**
Enter Interest	7 • 2 5 Int	**7.25**
Enter Term	3 0 Term	**30.00**
Find monthly Payment	Pmt	**"run" 2,114.75**
Enter Year 1	1 Amort	**"run" 1-12**
Find total Interest in Year 1	Amort	**22,376.60**
Find total Principal in Year 1	Amort	**3,000.36**
Find Prin./Interest in Year 1	Amort	**25,376.96**
Find Remaining Balance	Amort	**306,999.64**
Find Remaining Term	Amort	**29.00**
Find Mortgage Interest Tax deduction in Year 1 based on 28% Tax bracket	Amort	**6,265.45**

(etc. — keep pressing Amort if you want to automatically find next year's amortization values and Mortgage Interest Tax deduction.)

Enter 30% Tax bracket	3 0 Shift +	**30.00**
Enter Year 1	1 Amort	**"run" 1-12**
Find total Interest in Year 1	Amort	**22,376.60**
Find total Principal in Year 1	Amort	**3,000.36**
Find Prin./Interest in Year 1	Amort	**25,376.96**
Find Remaining Balance	Amort	**306,999.64**
Find Remaining Term	Amort	**29.00**
Find Mortgage Interest Tax deduction in Year 1	Amort	**6,712.98**
Return calculator to 28% Tax bracket	2 8 Shift +	**28.00**

**Note: If loan does not start in January, use the Month Offset feature (e.g., if loan starts in July, enter 7 Shift 000 and begin problem).*

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 Interest rate	7 • 5 Int	**7.50**
Enter Term	3 0 Term	**30.00**
Enter Down Payment	1 0 DnPmt	**10.00**
Enter Tax bracket	2 8 Shift +	**28.00**
Enter property Tax rate	1 • 2 5 Tax	**1.25**
Enter Insurance rate	• 3 5 Ins	**0.35**
Enter current monthly rent to find comparable home price	1 2 5 0 Shift Price	**216,781.98**
Find comparable Loan Amount	Price	**195,103.78**
Find PITI Payment	Price	**1,653.24**
Find annual Tax savings	Price	**4,838.84**
Find mo. Tax savings	Price	**403.24**
Re-display Tax bracket	Price	**28.00**
Re-display monthly rent	Price	**1,250.00**

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

Buyers who make $75,000 annually and have $500 in long-term monthly debt wish to buy a home but can only afford $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 qualify? What sales price can they afford? What's their total payment? *(Use 7.5% interest, 30-year term and qualifying ratios of 28%:36%).*

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 DnPmt	5,000.00
Set annual prop. Tax rate	1 • 5 Tax	1.50
Set annual prop. Ins. rate	• 2 5 Ins	0.25
Set annual Mtg. Ins. rate	• 6 Mtg Ins	0.60
Enter homeowner's dues	5 0 Exp	50.00
Enter Interest	7 • 5 Int	7.50
Enter Term	3 0 Term	30.00
Enter Qualifying Ratios	2 8 : 3 6 Qual 1	28.00-36.00
Find Qualifying Loan Amt.	Qual 1	"run" 189,119.31
Find Price	Price	194,119.31

— DO NOT CLEAR CALCULATOR —

Now find the monthly P&I payment (principal & interest), PITI payment (principal, interest, tax and insurance) and Total Payment (including monthly association dues):

STEPS	KEYSTROKES	DISPLAY
Find P&I Payment	Pmt	"run" 1,322.35
Find PITI Payment	Pmt	1,700.00
Find total Payment	Pmt	1,750.00

"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, Tax/Ins./MI rates of 1.5%, .25% and 0.6%, respectively, and qualifying ratios of 28%:36%. Re-enter $50 association dues and $5,000 down.)*

Note: If you're not continuing from the previous example, you'll need to enter Qualifying Ratios (enter 2 8 ÷ 3 6 Qual I), as well as interest, term, tax and insurance.

STEPS	KEYSTROKES	DISPLAY
Clear calculator	On/C On/C	**0.00**
Recall Interest	Rcl Int	**7.50**
Recall Term	Rcl Term	**30.00**
Recall annual property Tax rate	Rcl Tax	**1.50**
Recall annual property Insurance rate	Rcl Ins	**0.25**
Re-enter annual MI rate	• 6 Mtg Ins	**0.60**
Re-enter assn. 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 I	**28.00-36.00**
Find "restricted" Qualifying Loan Amount	Qual I	**"run" 137,725.41**

— DO NOT CLEAR CALCULATOR —

(Cont'd)

(Cont'd)

"Unrestricted" Qualifying

The amount calculated on the previous page is the loan they may qualify for, based on current income and debt. 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 (i.e., 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 allowable Debt	Qual 1	**ALW 453.33 MO DEBT**

**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) they may qualify for a mortgage loan of approximately $170,000 or more and afford that $175,000 home (if they put approximately $4-$5K down).*

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 dollar down payment and loan amount? What is the monthly payment? Use 7.5% interest for 30 years. Estimate property Tax/Insurance rates of 1.5% and .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	7 • 5 Int	**7.50**
Enter Term in years	3 0 Term	**30.00**
Enter Tax rate	1 • 5 Tax	**1.50**
Enter Insurance rate	• 2 5 Ins	**0.25**
Delete Mortgage Ins. rate	0 Mtg Ins	**0.00**
Enter sales Price	2 5 0 000 Price	**250,000.00**
Enter Down Payment %	2 0 DnPmt	**20.00**
Find Down Payment $	DnPmt	**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" 75,557.67**
Find maximum allowable monthly Debt	Qual 1	**"run" 503.72**
Find P&I Payment	Pmt	**1,398.43**
Find PITI Payment	Pmt	**1,763.01**

**If you are not continuing from the previous example, you'll need to re-enter the qualifying ratios (enter 2 8 ÷ 3 6 Qual 1).*

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

Given a buyer's annual income of $45,000, $500 in long-term monthly debt, estimated monthly homeowner's association dues of $50, an interest rate of 7.25% and term of 30 years, what loan amounts can they qualify for based on both 28%:36% and 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	4 5 000 Inc	45,000.00
Enter monthly Debt	5 0 0 Debt	500.00
Enter monthly assn. dues	5 0 Exp	50.00
Enter Interest	7 • 2 5 Int	7.25
Enter Term	3 0 Term	30.00
Enter property Tax rate	1 • 2 5 Tax	1.25
Enter property Ins. rate	• 3 Ins	0.30
Enter Mortgage Ins. rate	• 4 5 Mtg Ins	0.45
Display Qual 1 Ratios*	Qual 1	28.00-36.00
Find Qual 1 Qual. Loan	Qual 1	"run" 94,245.94
Find Qual 1 P&I Payment	Pmt	642.92
Find Qual 1 PITI Payment	Pmt	800.00
Find Qual 1 total Payment	Pmt	850.00

— DO NOT CLEAR CALCULATOR —

**If you are not continuing from the previous example, you'll need to re-enter the qualifying ratios (enter 2 8 : 3 6 Qual 1).*

STEPS	KEYSTROKES	DISPLAY
Enter Qual 2 Ratios	2 9 : 4 1 Qual 2	29.00-41.00
Find Qual 2 Qual. Loan	Qual 2	"run" 116,334.83
Find Qual 2 P&I Payment	Pmt	793.61
Find Qual 2 PITI Payment	Pmt	987.50
Find Qual 2 total Payment	Pmt	1,037.50
*Return to Canadian Interest Mode, if returning to Canadian examples	Shift 9	INT Cdn
*Return calculator to default GDS:TDS Ratios	3 2 : 4 0 Qual 1	32.00-40.00
	3 5 : 4 2 Qual 2	35.00-42.00

**IMPORTANT: Be sure to return your calculator to "Canadian Mode" by pressing Shift 9, if you wish to perform Canadian mortgage loan problems. Also, be sure to return the calculator to its original Canadian Qualifying ratios.*

APPENDIX

Default Settings

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

- Canadian Interest Mode
- Two Fixed Decimal Places
- 12 Periods per Year = Reset to 12 Upon Off
- Property Tax/Ins. = Values Cleared Upon Off
- Mortgage Ins. = Values Cleared Upon On/C On/C
- Amortization Range = Specified Year (Ent-Ent)
- Qualifying Ratios Displayed 1st
- Qual 1 Ratios = 32%-40% (Canadian)
- Qual 2 Ratios = 35%-42% (Canadian)
- Month Offset to January (1)
- Tax Bracket = 28% (U.S. Mode only)

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 (i.e., reset all registers and Preference Settings to their original default values). To do this, turn off the calculator, hold down the ⊠ 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

Should the display become very dim or erratic, replace the batteries.

Batteries Included: Two LR44 (1.5V) batteries
Battery-Life (Actual Use): 1,000 hours

Note: Please use caution when disposing of your old batteries, as they contain hazardous chemicals.

Replacing the Batteries: Slide open and remove the battery door (located on upper backside of calculator). Remove the old batteries. Insert two new LR44 button-cell batteries, making sure they're facing positive-side (+) up. Close the battery door.

Note: Replacement batteries are available at most camera or electronics stores. You may also call Calculated Industries at 1-775-885-4900.

Warranty, Repair and Return Information!

Return Guidelines:

1. Please read the ***Warranty*** in this User's Guide to determine if your Calculated Industries calculator, measuring device or electronic tool remains under warranty **before** calling or returning any device for evaluation or repairs.
2. If your calculator won't turn on, try pressing the "**Reset Button**" first. If it still won't turn on, check the batteries as outlined in the User's Guide.
3. **If there is a black spot on the LCD screen, THIS IS NOT A WARRANTY DEFECT. The unit can be repaired. Call for a repair quote before returning your unit.**
4. If you need more assistance, please go to our website at www.calculated.com and click on Support, then Repair Services FAQs.
5. If you believe you need to return your calculator, please speak to a Calculated Industries representative for additional information!

Call Toll Free: 1-800-854-8075

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, 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., ship the product postage paid to Calculated Industries (address listed on the last page). Please provide an explanation of the service requirement, your name, address, day phone number and dated proof of purchase (typically a sales receipt). If the product is over 90 days old, include payment of $6.95 for return shipping and handling within the contiguous 48 states. (Outside the contiguous 48 states, please call CI for return shipping costs.)

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.

Disclaimer

CI MAKES NO WARRANTY OR REPRESENTATION, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCT'S QUALITY, PERFORMANCE, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. AS A RESULT, THIS PRODUCT, INCLUDING BUT NOT LIMITED TO, KEYSTROKE PROCEDURES, MATHEMATICAL ACCURACY AND PREPROGRAMMED MATERIAL, IS SOLD "AS IS," AND YOU THE PURCHASER ASSUME THE ENTIRE RISK AS TO ITS QUALITY AND PERFORMANCE.

IN NO EVENT WILL CI BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECT IN THE PRODUCT OR ITS DOCUMENTATION.

The warranty, disclaimer, and remedies set forth above are exclusive and replace all others, oral or written, expressed or implied. No CI dealer, agent, or employee is authorized to make any modification, extension, or addition to this warranty.

Some states do not allow the exclusion or limitation of implied warranties or liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific rights, and you may also have other rights, which vary from state to state.

Legal Notes

Looking For New Ideas

Calculated Industries, a leading manufacturer of special-function calculators and digital measuring instruments, is always looking for new product ideas in these areas.

If you have an idea, or a suggestion for improving this product or User's Guide, please submit your comments online at www.calculated.com under "Contact Us," "Product Idea." Thank you.

INDEX

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Designed in the United States of America
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