

The Money Machine

“Calculating for Success”

**The Professional Note Buyer’s
“Keys to Success”**

Featuring

**The Hewlett Packard 10B II
Financial Calculator**

This course is designed for the Real Estate Investor and beginning Note Buyer. This manual will familiarize you with the basic functions of the HP 10B II calculator, as well as basic mortgage and note calculations. Its real-world case studies and examples will, literally, catapult you to success in this exciting field.

By

**Robert L. Leonetti
&
Jayme Kahla**

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“Calculating for Success”

An Owner’s Manual...

Featuring

**The Hewlett Packard 10B II
Financial Calculator**

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**From a Declaration of Principles jointly adopted by a committee of the American Bar Association and a Committee of Publishers and Associations.*

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*There are many people who have contributed to this book, both directly and indirectly. We'd like to acknowledge all of our clients and students, our coaching team, the tremendous staff at SMI Funding, and the myriad of note buyers, sellers, and investors with whom we've done business for many years. More specifically, we appreciate **you** and **your** support – we wouldn't be where we are today without Real Estate Investors just like you, who continue to use our company to fund their deals.*

So from the bottom of our hearts, thank-you to all of you who have helped make our business, and this project, a success.

WELCOME!

One of the most frightening things about a project like this is coming up with a title! Oh, sure, the manual itself it was easy enough to write it (we've been using a financial calculator in both our note and real estate business for years!), but then we had to figure out what to call it! At first, we thought (this was Bob's idea) of *Calculating for Dummies*. Not only was it not original; it didn't do justice to our students who are NOT dummies but instead, may just be "calculator challenged!"

And maybe...just maybe...that's where you fit in. Learning to operate almost any electronic device for the first time can require a lot of patience. This is especially true with respect to financial calculators. Once learned, however, these instruments provide accurate time-saving calculations automatically, enabling the investor to examine a multitude of techniques and strategies for investment consideration. ***Calculating for Success*** has been designed with the note-investor *and* real estate investor in mind, to shorten the learning time necessary to operate the calculator with ease and confidence. Let's face it: you want to be an **expert**, and we want your walk down that path to be as easy as possible!!

So, the first step is to congratulate you on your decision to purchase this course featuring the **Hewlett Packard 10B II Financial Calculator**. (*Hewlett Packard also makes the HP 12-C, which is a fairly advanced calculator. You don't need all of its bells and whistles, but if you have one, don't despair! This manual can help you, too!*) While calculator manuals provide a great deal of valuable information, it is often difficult to fully comprehend just exactly what the manufacturer's manual-writers are trying to say! (BOB: I'm firmly convinced that most of those manuals are written by technical geeks that assume you have a basic

level of knowledge...in reading Greek!) Granted, they contain some invaluable information, but sometimes they're very hard to understand and to apply.

For that reason, we wrote this manual so that you can learn to use the financial calculator *without* having to be fluent in Greek! We kept it in plain, simple English, and have filled this user-friendly course with demonstrations of real-world scenarios. And, in keeping with our belief that learning should be fun, we have tried to keep it "light" (hmm...*Calculator Light*...another great title! Less filling...tastes great!). For heaven's sake, don't be intimidated by a piece of plastic with buttons on it! There is no reason to complicate something that is, once learned, very easy.

One of the most important things an investor needs to know is how to evaluate a deal. In fact, we personally know of situations where simple errors were made that cost people literally \$1000's of dollars because they didn't know how to use this tool. Note buyers need to know the terms of the note, as well as be able to determine their prospective yield. Real estate investors need to know how much their new property is going to cost them every month, and whether or not the incoming rents will cover the outgoing payment. And wouldn't you like to understand just how easy it is to get astronomical returns on your money of 30%, 40%, 50% or even 122%?? ***Investors need to know that, too!***

In order to do any of those efficiently, you need to know how to use a financial calculator. We have selected the **Hewlett Packard 10B II** (our "*Money Machine*") because it is one of the most complete, easy-to-use calculators we have found, and...it's dependable! We use it in our day-to-day business (each of us has three of them: one for home, one for the office, and one to carry with us everywhere - just in case...) and frankly, feel lost without it! It eliminates the need for those tiny little mortgage tables, and just think:

No longer will you have to guess at payments on a note! **No longer will you wonder** what the interest rate is, or how much your payment will be affected by changing it! **No longer will you need to guess** on all of those important figures, like the Balloon Amount, the Current Balance or even (this is my personal favorite...) the **Yield**. That's right! Though this little gem neither slices, dices, nor walks your dog...it **will** become as essential to you in your business as a pen, pencil, or telephone. And (here's the really **good** part...), **it will be just as easy to use!!** In fact, my prediction is that you will come to rely on the calculator so much you'll wonder how you ever got along without it!

The bottom line is that the **Hewlett Packard 10B II (HP 10B II)** is an extremely powerful tool. In fact, it is so powerful, that we will only cover a fraction of what it has to offer. We'll cover the basics, and then focus our concentration on those functions that are pertinent to real estate investing and to the note business. Should you require more information on areas outside of this arena (statistical functions, etc.) please...learn Greek...and refer to your owner's manual.

After completing this course, you will easily be able to:

- Calculate all five parts of a note (**Payment, Interest Rate, Present Value, Number of Payments, and Future Value**).
- Calculate the **Present Value** of an existing note.
- Calculate the **Future Value** of an investment or Note with periodic installments.
- Calculate your desired **Yield**, as well as your **Profit**, on any transaction.

Designed primarily for the note buyer and real estate investor, this course will provide you with the **Keys to the Money Machine!** As a beginner, you'll find yourself using it to put together deals, figure cash flow, and, of course, calculate

potential profit! As a seasoned investor, you'll concentrate on new ways to structure deals, earning advanced yields, and of course, your potential profit, too! It's a useful tool that you can use in dealing with banks (short sales, defaulted paper), private sellers, and of course, note-holders and investors, too!

A quick note before we move on: You'll find that if you write down your calculations before you enter them into your calculator (use the handy forms we've provided toward the end of this book), you'll keep your errors to a minimum, and have a lot better understanding!

As Dad used to say, "Practice makes Perfect!" What he probably meant was "*Perfect Practice* makes Perfect!" Remember, the key to proficiency in any endeavor is **Practice** and **Application**. This course will provide you with a tremendous boost in both areas. With that in mind, sit back and relax, enjoy this learning opportunity, and...

Let's Get Started!

Special Note: Some of the pages of this manual are intentionally blank – this assures that new chapters always start on the right-hand side of the page when it is printed.

Table of Contents

or...

The Money Machine's Owner's Manual

While most Tables of Content merely outline the materials, we would like you to use this one as a roadmap! In fact, if you will review the outline of each individual section **before** you tackle the rest of the material, it will help you develop a framework with which to better integrate your learning. Remember one of my favorite sayings:

Preview, Do, and Review!

And, to facilitate easier learning, and to once again **signpost** where we're headed, you'll find that we have divided this program into five major sections:

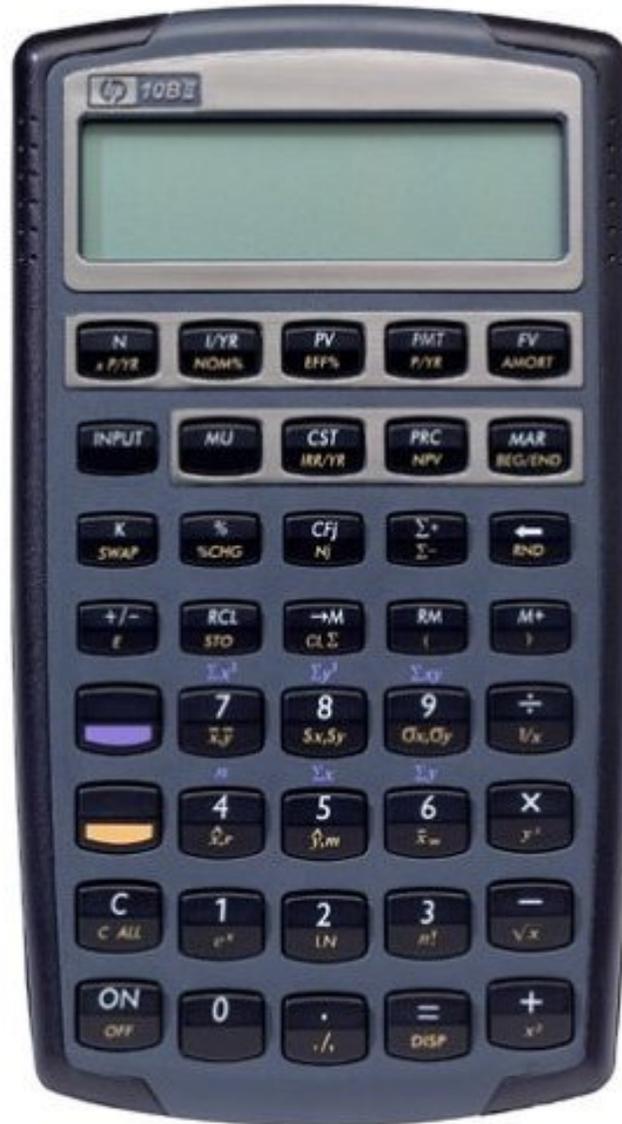
Section One – *The Magic Money Machine!* How does a financial calculator differ from a regular one, and how does it benefit us in the discounted paper business?

Section Two – *Keys to Success!* The next step in our Owner's Manual on the Road to Success is familiarization with the Keyboard, and learning easy calculations.

Section Three – *Now You're Cooking!* or...*Calculating in Your Kitchen!* See? I told you it even slices and dices! Seriously, visualize specific Financial Cells, and learn how to cook up high yields and profit! We'll even show you how to take the lid off the calculator's special "canisters" and see what's inside!

Section Four – *Four Simple Steps to Success*. Using real-world examples, learn how to structure a specific note purchase. And for those who are ambitious and daring, take a few ***extra*** steps and climb higher with some great, real-world practice examples.

Section Five – *Practice Calculations*. All through the manual, I've encouraged you to ***Preview, Do, and Review***. Well, here's your chance! Go through the examples and complete all of the calculations I've listed; if you have questions, refer to the answer key that immediately follows.



Section I:
The Magic Money Machine!

As an introduction to a *financial* calculator and, more specifically, to the **HP 10B II**, in this chapter we'll be discussing:

- How a Financial Calculator compares to a “regular” calculator.
- Why the **HP 10B II**?
- The concepts of ***Amortization*** and ***Interest Only*** notes, and how the Financial Calculator can help in each instance.
- Multiple uses of a financial calculator.

Compared to a “regular” calculator...

Instead of spending about \$40.00 on a calculator, wouldn't it be great to go down to your local bank, open an account, and get one of those solar-powered calculators as a free gift for doing so? Don't laugh! You'd be surprised at how many people we see who have a very simple calculator and expect it to perform multiple financial functions! Unfortunately, those little basic models just aren't up to the job.

On the other hand, a financial calculator is built to perform specific functions pertaining to the world of finance. On the HP-10B II, note a couple of things:

1. It has ***Special Function*** keys. In other words, there are buttons on it that you won't see on that little sun-powered model. Rest assured, however, that it really isn't as complicated as it looks. In fact, for our purpose, (and please make a special note of this), we will primarily be using just the keys in the first row!

2. You should also note: ***It's a regular calculator, too!*** Yes, it has all of the normal buttons you'd find on the sun-powered model, and it really is quite adequate at adding, subtracting, multiplying and dividing!

Why the HP 10B II?

Why do we use and recommend the HP 10B II? Over the years, I have used several different financial calculators, including a Texas Instruments model, and a great model called the Real Estate Master. Both Jayme and I gravitated toward the HP because of several reasons: they're reliable, almost indestructible, and relatively inexpensive. In fact, considering the money we've made in the note business, \$40.00 seems a small price to pay for such a valuable tool. Be aware that there are many more costly models made by Hewlett Packard, but for ease of use and reliability, the 10B II is our *money machine* of choice!

Additionally, the Hewlett Packard Company has long been considered the standard of excellence for the electronic instrument industry. In the past, the calculators produced by this company were considered too costly for the average user, but because of their superior reliability, Hewlett Packard instruments have always been the tool of preference for business professionals. The HP 10B II combines the reliability, speed, and accuracy of Hewlett Packard technology with an ease of use that will be appreciated by those who routinely make financial calculations.

Amortization

There are two basic concepts that it is important for you to understand when recognizing the need for a financial calculator; some notes are categorized as ***Interest Only*** notes, and some notes are fully ***Amortized***. Let's explore:

Interest Only notes: The definition pretty much says it all. An *interest-only* note is a note whose payments consist of, you guessed it...interest only! In other

words, if you were to borrow \$10,000 from someone and agree to repay them *interest-only*, your payments would just cover the accrued interest. At the end of the term when the note was due, you would still owe the original \$10,000, because along the way, you'd paid only the interest. In other words, when a note is considered *interest only*, the payments cover *only* the interest that is accruing on the note, while the principal is left untouched.

[[Side Note from Jayme: Bob often uses private lenders in his real estate investments, all of which extend him interest-only loans. Let's say he borrows \$100,000 at 12% per year, interest-only. In a year's time, he would make 12 monthly payments of \$1000 each (12% of \$100,000 = \$12,000). However, at the end of that year, he would still owe the original \$100,000 that he borrowed in the first place.]]

Now then, let's compare this concept with...

Fully Amortized notes: A *fully amortized* note is one in which each payment includes paying the accrued interest, as well as paying a little bit of the principal. In other words, when a note is *fully amortized*, it is literally "taken to its death" over the course of the loan. At the end of the loan period, this type of loan has a zero balance, because the principal was paid off, bit by bit, with each loan payment. Compare this to an *interest only* loan, where, at the end of the loan period, the entire principal balance is still owed.



NOTE TO SELF! The word *Amortize* comes from the Latin words *A* (meaning *from* or *to*) and *morte*, meaning *Death* (pleasant, huh?!). A fully amortized loan is one that is literally "*carried to the death.*" No balance remains at the end of the term.

Here's how this all ties together...

One of the reasons that we use a financial calculator is that most notes we find or *create* (more about that later) are not just simple, interest-only notes. Instead, they are fully amortized, and we need a calculator that can figure out how much of each payment goes toward paying interest, and how much is devoted to paying the principal. We also want to know what the loan balance is (in case we want to pay it off) at any specific point during the term. And while a good spreadsheet program (like Excel) will do this, we've found it much easier to carry along our trusty little financial calculators.

Multiple Uses of a Financial Calculator

Finally, to finish this section, let's discuss three major uses of a financial calculator!

1. First of all, a financial calculator **calculates payments on any type of loan/note**.
 - i. It takes complicated formulas necessary to compute payments and makes them EASY!
 - ii. Forget those cumbersome mortgage tables – they're no longer necessary! And finally...
 - iii. You can determine exactly how much is owed, because it also calculates the declining balance on the principal!
2. Second, this handy little machine **calculates yield** (*return on investment*):
 - i. You'll be able to untangle the weird web that lenders weave and figure out exactly what their return is.
 - ii. You can finally figure an accurate return on your own investments.
 - iii. Better yet, now you can differentiate between good, bad, and average investments!

3. Third, the financial calculator allows you to **calculate the present value of a note** at any point in time:
- i. Figure a loan payoff at any point during the term of the mortgage – quite helpful for refinancing, or even for selling on a wrap!
 - ii. Calculate the value, or payoff, on a note, after several payments have gone by.
 - iii. Find out how much a note is worth if you only buy a few payments. Better yet, how much is it worth when it reverts back to the seller?

Summary

Be sure and take your time and reread this section if you are unclear about any of its concepts. It is very important that you understand the basics before moving on, especially the concepts of ***amortization*** and ***interest only***.

Section II:
Keys to Success
&
Simple Math...Made Simple!

The financial calculator has keys that are like those found on most other calculators, as well as additional ones that are found *only* on a financial calculator. Keeping with our practice of **Preview**, **Do**, and **Review**, this section will cover the operation of the keyboard, as well as some simple exercises to make you more comfortable with the calculator. This is pretty basic stuff! On the other hand, it pays to familiarize yourself with your newfound friend!

More specifically, we will address:

- **Primary Keys** – “normal” keys that are used in everyday calculations.
- **Two-Function Button** – just like a typewriter or computer has a [shift] key, the HP10B II has a “special key” that serves the same purpose: giving the other keys multiple uses.
- **Secondary Keys** – functions that are accessed by using the “special” or [shift] key.

Primary Keys, Their Use and Examples

[C] (ON/OFF)

This turns the calculator on and off. To turn the calculator on, press the **[ON/OFF]** key. To turn it off, first press the **[GOLD]** shift key, located directly above the **[C]** key, and *then* the **[C]** key. When the calculator is on, press the **[C]** key *once* to clear the display and *twice* to clear the display and the pending operation. This key will *not* clear the memory or the registers.

- [+] Adds like any calculator.
- [-] Subtracts like any calculator.
- [x] Multiplies like any calculator.
- [÷] Divides like any calculator.
- [%] Converts the displayed number to a decimal, which can then be combined with +, -, x and ÷ to perform many tasks.

EXAMPLE: A Real Estate Agent's commission is 6% of the \$85,000 sale of your property. Enter 85000 [x] 6 [%] [=] (your display will show 5,100).

EXAMPLE: Building materials are \$355.45 and you want to calculate the total cost including sales tax of 8%. Enter 355.45 [+] 8 [%] [=]. Your display should now show 383.89. The calculator displays the total tax, \$28.44 before you press [=], giving you a chance to see the total tax before it is added to your purchase price.



NOTE TO SELF! To change a pending operation (=, -, x, ÷) press the desired operation immediately after the incorrect operation was entered, and **before** any other numbers. If you realize you've hit the wrong operation **after** additional numbers have been entered, press [C] and start over.

EXAMPLE: You are multiplying your property cost of \$60,000 by 110% to determine the selling price, given a 10% mark-up. Instead of touching the [x] key to multiply, you accidentally push the subtract key

[-]. Rather than clearing the whole calculation by pressing [C], immediately press the multiply key [x] and continue the calculation as planned. $60,000 [x] 1.10 [=]$ \$66,000. Another way to accomplish the same calculation would be to add 10%. Do this by pressing the following keys: $(60,000 [+] 10 [%] [=])$ \$66,000).

[+/-] **This particular key is very important**, because it has the ability to change a positive number to a negative number, and visa versa. You will frequently use it when figuring out payments and future value later on. For now, just know that the easiest way to use it is to input your desired number, and then push this button, which will change the number you entered to a negative one.

[RCL] This button will come in very handy as you get into the financial calculations later in this manual. Pressing it allows you to see the number you have previously entered into a particular cell. For instance (more about this later), if you put 360 into the [N] cell, and later, are unable to remember what you put into [N] (*and yes, as the “golden years” creep up on you, this may occasionally happen!*), you can push [RCL] [N], and 360 will show in the display.

[CLEAR ITEM]

There are two ways to clear only the item most recently entered, enabling you to replace it with the desired number:

1. Use the **[C] key**, labeled [C] for clear
2. Use the **backspace** [←] key

Two Function Button [Gold Shift]

Some keys of the HP 10B II have more than one function. The advantage of multiple functions is that the calculator can perform more actions than it has

buttons. The result is that you have the convenience of a calculator that is smaller in physical size, with the capabilities of a much larger one. The primary function is printed **on** the top surface of the button in **white**, while the secondary function is printed on the lower surface of the respective button in **gold**.

The solid [**GOLD**] “shift” button enables the user to operate the secondary function as indicated by the gold letters on the key – pretty much like the [shift] key on a typewriter (I’m dating myself...) or a computer. To activate the secondary feature, press [**GOLD**] immediately preceding the function you wish to perform. The display on the calculator will reveal a symbol [SHIFT] to indicate that the instrument has been “shifted” into second gear. Once the function button has been selected and depressed, the shift indicator disappears and the calculator is once again in “first” gear, and all successive keystrokes will be in the primary function.

Secondary Keys

The [**GOLD**] shift key gives you access to a completely new set of functions that are all very important; one’s we will use on a regular basis. Let’s look at each of them in turn:

[XP/YR] Located on the [**N**] key, this function automatically converts the number of years in a loan to months. To complete this function, start by entering the number of years, depress the [**GOLD**] shift key, and finish by depressing the [**N**] key.

[P/YR] Located on the [**PMT**] key, this function changes the number of payments per year recognized by the calculator.

EXAMPLE: Most loans are paid on a monthly basis, meaning that there are twelve payments per year. Sometimes, however, there are special circumstances where there are fewer payments per year. For instance, if the terms of the loan call for a quarterly payment, the calculator needs to recognize that there will only be four payments per year. To do this, enter the number **4**; depress the [**GOLD**] shift key and then the [**PMT**] key. The calculator now resets to four payments per year.



NOTE TO SELF! Check the number of payments per year to which the calculator is set. Depress the [**GOLD**] shift key and hold down the [**C**] key. If the calculator is set for 4 payments per year, the display will read **4 P _Yr.** **BE SURE** and reset your calculator to 12 payments per year!! **DO IT NOW!**

[DISP] Sometimes, your calculator comes from the factory with only a zero showing in the display, and nothing to the right of the decimal point. While this is fine, there will be times when you need to know both dollars *and* cents. **[[JAYME:** *As usual, Bob has to throw his two-cents in...*]] This function, located on the [=] button, sets the number of decimal places you choose to view. Usually, you will only want to show two places, but in order to change the display, depress the [**GOLD**] shift key, the equal [=] key, then the number of places you want to show after the decimal point.

EXAMPLE: Turning on your calculator results in “0” showing in the display, when you really want “0.00” to show. Press [**GOLD**] [=] and the number **2**. Your display will now show the two places to the right of the decimal point.

[CLEAR ALL]

To completely clear everything in the registers and cells, depress the **[GOLD]** shift key and the **[C]** key to activate the *clear all* function.

[BEG/END] We had a disagreement with our editor, Karla, about including this key, mainly, as she so aptly stated, because it is so seldom used. All the same, every once in a while, a calculator arrives from the factory with the wrong setting, resulting in incorrect answers. So, on the rare chance that your calculator shows the word [BEGIN] in the display, remove it by depressing the **[GOLD]** shift key and then the **[MAR]** key.

Keyboard Summary

Okay! Time to *Review!* Remember, there are both **Primary** keys and **Secondary** keys on the keyboard, along with a two-function **[GOLD]** shift key to go from one set of functions to the other. As in the first section, make sure that you are entirely familiar with their operation before moving on to the next section. And speaking of moving on, before you do, we have some exercises for you (no...not THAT kind!!).

And speaking of which...we have a lot of students who cry, “*I can never do this – I’ve always been terrible at math!*” If you’re one of those people, don’t despair! Jayme (the smart one) was once a CPA licensed in three states. You’d think she has a natural intuitive feel for numbers, but that just isn’t the case. In fact, when we go out to eat, she has problems figuring out a 15% tip! You see, (and pay close attention here), while she may not be good at math, she is certainly very adept at using the calculator. And *yes...*there is a **huge** difference!!

So...let's go ahead and try the easy stuff! Let's do some simple math, but let's let the calculator do all the work! Besides, these simple exercises will familiarize you with its functions!

ADDITION

Add the following numbers: 185,000, 37,000, 6,954, and \$308,000.



PLEASE NOTE: The word PEND will appear after a function (+, -, x, or ÷) to indicate a calculation in progress.

EXPLANATION	PRESS	DISPLAY
Turn On Calculator:	[C]	0.00
Enter the first number:	185000	185,000
	[+]	185,000.00 PEND
Add the second number:	37000	37,000
	[+]	222,000.00
Add the third number:	6954	6,954
	[+]	228,954.00
Add the last number:	308000	308,000
	[=]	536,954.00

Note that each time a function was entered, the display revealed the running total of the previous number(s) and the latest entry.

SUBTRACTION**Subtract 43.95 from 689.77**

Enter the first number:	689.77	689.77
	[-]	689.77
		PEND

Subtract the second number:	43.95	43.95
	[=]	645.82

MULTIPLICATION**Find the product of 1492 x 45.7**

Enter the first number:	1492	1492
	[x]	1492.00
		PEND

Multiply by the second number:	45.7	45.7
	[=]	68,184.40

DIVISION**Divide 43,560 by 1125**

Enter the first number:	43560	43,560
	÷	43,560.00
		PEND

Divide by second number:	125	125
	[=]	348.48

CONGRATULATIONS! You've conquered the regular math (that wasn't so hard, was it??). Now, let's continue and have some *real* fun! **[[Side note from Bob** - Actually, I think Jayme, the former accountant, is the one who *really* has fun with the calculator...the rest of us mere mortals only have fun with the results it produces!]]

**Section III:
The Financial Cells**

or...

“Now You’re Really Cooking!”

Before we get into the “meat and potatoes” of this course (and yes, maybe because I’m writing this late at night, I’ve got food on my mind...), we need to expand a little on the elements of a note. In short, each note has **five** parts:

1. The time, or **TERM** allowed to repay the loan
2. The **INTEREST RATE**
3. The original **AMOUNT BORROWED**
4. The **PAYMENT**
5. The amount owed at some point in the future, or **FUTURE VALUE**

Here’s a more thorough explanation of each:

SPECIAL NOTE: This course is *not* intended to be a course that teaches the buying and selling of mortgages. Rather, its sole purpose is to help you learn to operate a financial calculator. For a more detailed explanation of *Discounted Paper*, please refer to one of our other courses, either ***The Paper Game***, or for creating paper to buy and sell properties, ***Paper Magic***.

For this discussion, we will assign each part a label that corresponds to a button in **Row 1** on your calculator:

N Stands for the number of payments in a note. Most residential mortgages in the United States are 30-years loans, but you should start thinking in terms

of months rather than years. A 30-year loan is really one with 360 monthly payments.

I/YR Most lenders and private sellers don't lend money for free (ok, ok...let me rephrase that: Most *smart* lenders and private sellers don't lend money for free!). In other words, they charge *rent* on the money they loan out, or, as we know it, **interest**. This term reflects the *yearly* interest rate (**Interest per YearR**).

PV Present Value, in most cases, represents the original amount that was borrowed; also known as the *loan amount*. You'll find in some advanced calculations that PV stands for the principal balance owed *today* (in the present, as in *Present Value*).

PMT It's pretty obvious that PMT stands for payment, or the dollar amount due for each payment period. What you may *not* know is that the amount of the payment directly reflects both the interest rate and the amortization period. In other words, if the interest rate increases (and all other parts remain the same), the payment will also go up. By the same token, if the amortization period is shortened, the payment will also go up.

EXAMPLE: Have you ever wondered why you can borrow \$50,000 at 4% to buy a car, yet have a higher payment than if you borrowed that same \$50,000 at 8% to buy a house? The answer is simple: you usually only have 3-5 years to repay your auto loan, while the repayment of your mortgage is spread out over 30 years (Oops! I mean...**360** months!)

FV FV stands for the Future Value of the note, or, simply stated, what the note is worth at some point in the *future*. Get in the habit of only using it when the note has a balloon payment due. In other words, you may have a note that is

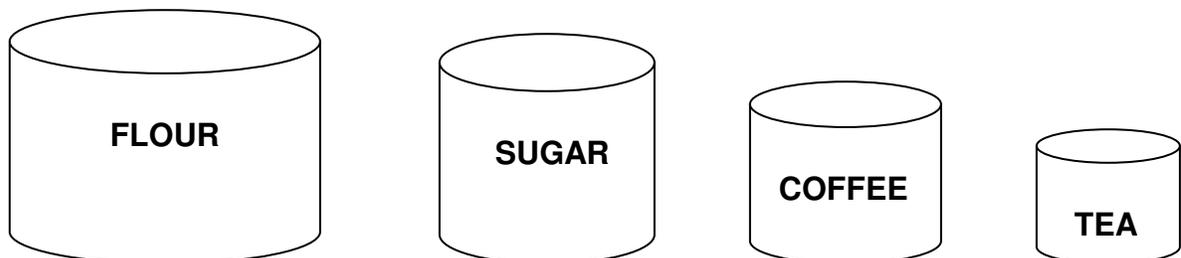
amortized over 360 months, but due in 60. You'll be using the FV key to determine what the balance owed will be 60 months into the future. And on a different note, based on the amortization discussion in **Section 1**, we can determine that, 360 months into the *future*, a fully amortized note's value (*future value*) will be zero.



NOTE TO SELF! The **Payment** and **Future Value** are ALWAYS negative numbers! The easiest way to remember this is to visualize money going out, which is, in most cases, a *negative* thing.

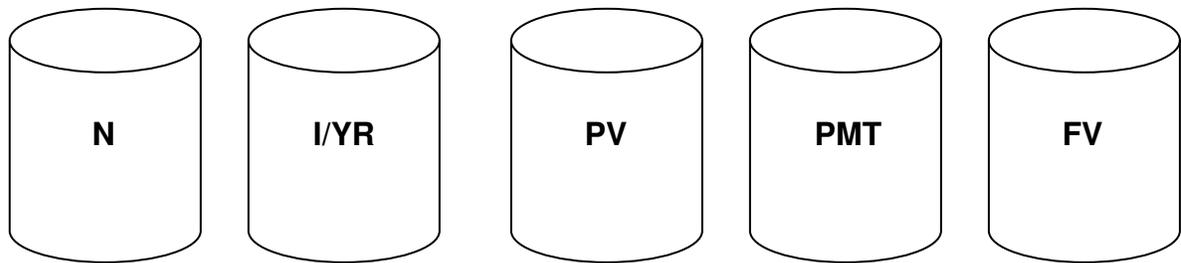
VISUALIZING THE FINANCIAL CELLS

The financial cells in any financial calculator often overwhelm novices to the financial calculation process. I have found, over the years, that these cells are easy to understand if you compare them to ingredient canisters found in almost every American kitchen. (See? *There's that cooking reference again!*) Each of these kitchen canisters contains an ingredient notably different from the other. Coffee is significantly different from flour, sugar, and tea. If we were to select the wrong ingredient for a given recipe, the result would be disastrous! The proper ingredient however, stored in the right canister, will produce the proper results.



The same principle applies to financial storage cells. Each of the ingredients is different from the other, and choosing the wrong one spells d-i-s-a-s-t-e-r. Proper

use of them however, ensures that the road to smooth operation of your financial calculator is an easy one to navigate. Picture the financial cells as follows:



Before we go on...

There are a few very important items you need to learn before we continue. And...*we* (okay – I really mean *you*) need to agree to do a few things:

THINGS TO REMEMBER:

1. Each cell has memory! In other words, whatever you put into the canister stays in that canister, until you either dump it out, or replace it with something new. And the calculator, in its infinite wisdom, somehow remembers! So, in light of this, be sure and begin each new calculation by **[CLEAR ALL]**. Remember? **[GOLD]** and **[C]** = **[CLEAR ALL]**
2. Each of the five cells is unique unto itself. In general, you will know enough information to enter into *four* out of the *five* cells. You will solve for the cell that you do not know by simply depressing that particular key. It doesn't matter in which order you enter the information.
3. It is sometimes necessary to check what is entered into a cell. This can be accomplished by using the **[RCL]** key. To see what is entered in the **[N]** cell, depress the **[RCL]** key and the **[N]** key. The display will show the number that was previously entered (simply think of it as a way to take

the lid off of the canister, and see what is inside!). This works with *any* of the five cells.

4. Because the *payment* [**PMT**] and *future value* [**FV**] are always negative numbers, you will need to change their sign (*Seventies Flashback... "What sign are you?"*) and use the [+/-] when you enter their value into the corresponding cell.

THINGS TO DO:

1. When we first learned the calculator, we developed a format that allowed us to write everything down on paper before we put anything into our calculators (we affectionately call this tool a **Calculator Grid**). The format is pretty simple – we just created a series of boxes (or cells) that represented the cells on the calculator. You need to get into the habit of using this format each time you complete a calculation, and to that end, we've included several **Grid Sheets** for your use (at the back of the manual).

We need you to agree to write down *everything* before doing *anything*!

2. When writing everything down, make sure that you put the correct information into the corresponding *cell*. In other words, make sure you put the flour into the flour canister and not into the coffee canister (which could lead to some V-E-R-R-R-R-Y interesting results...)

KEYS TO SUCCESS

Now that you're ready to start putting numbers first into the **grid**, and *then* into your calculator, we feel that it is necessary to take a final look at the function of

each of the cells. *This may seem redundant at first* – that’s okay! **[[JK** – Bob works for the Department of Redundancy Department...]]. We just want to make sure that even though you understand the five parts of a note, you also understand the corresponding five **Financial Function** keys (Row 1) on your calculator.

N This cell is for the **N**umber of payments, where **[N]** stands for the number of payments *remaining* in the loan. It can represent the payments in a mortgage, or the number of periods in an investment. If the term of the loan were 30 years, you would enter **360** in the **[N]** cell or **30**, **[GOLD]** and **[N]** for the calculator to do the math for you.

I/YR This cell contains the **I**nterest Rate per **Y**ear, or **Y**ield on an investment. This is your *annual* interest rate. It can also represent your annual yield, or return on your investment. When you enter the annual rate, the calculator will automatically convert this to a monthly figure for you (some calculators, like the HP 12-C, make you enter the yearly rate, then divide by 12).

PV The **[PV]** key, representing **P**resent **V**alue, can be used for several purposes. It may be used as the *loan amount* (original balance) where monthly payments are yet to be determined. We can also use this cell to determine the *remaining balance* on a seasoned note, and we can use it to tell us the *amount to pay* for a discounted note.

Present value, in essence, means an amount that is paid *today*. In other words, you’ll enter the principal amount of a mortgage or investment, representing value in today’s dollars. This is part of the *Time Value of Money* axiom, which basically says that because of inflation, your dollars are worth more today, in terms of buying power,

than they will be in the future. ***The devaluation of your dollars is directly proportional to the length of time they are outstanding.***

PMT [PMT] represents the periodic **payment** that is paid on the note. This figure includes both principal and interest. On this calculator, the *payment will always be a negative number*. Keep in mind that the *periodic-payment* in most cases is one per month (12 per year).

FV This final cell represents the **Future Value** of the note or, stated another way, the balance at some point in the *future*. This key is used to calculate balloon payments and, like the payment cell, *this cell should always show a negative number* (unless it is 0). There are several items you should note about this cell:

- a. On a fully amortized note, [FV] will always be zero. That's because the loan will be fully paid off at the end of the loan term.
- b. A **balloon payment** is usually a lump sum payment that is due sometime before the end of the amortization term. In most cases, the balloon finishes paying off the note. Therefore, another way of looking at a 60-month balloon is asking, "*What will be owed on the note 60 months from the date of the note?*"
- c. Once in awhile, you will come across an *interest-only* note (see **Section 1**). When you do, remember that the number in *future value* will be the same number (only negative) that is in *present value*. In other words, the amount borrowed *today* will still be owed in the *future*.

EXAMPLE: (*We'll do a lot more of these in the next section...*) Someone wants to sell you a note that they're receiving payments on. It is a \$30,000 note that has

been amortized over 120 months at a 10% interest rate. What is the payment?
Remember, when a note is fully amortized, the future value will be zero!

The first thing you should do is *write this down* on the Grid Sheets at the back of the manual. Using our format, you should have on your sheet:

N	I	PV	PMT	FV
120	10	30,000	___?___	0

Now then, enter each number into your calculator, and *then* tell the calculator which cell it belongs in by pressing the corresponding key:

<u>EXPLANATION</u>	<u>PRESS</u>	<u>DISPLAY</u>
Enter the Term	120	120
	[N]	120.00
Enter the Interest Rate	10	10
	[I/YR]	10.00
Enter the Loan Amount	30000	30,000
	[PV]	30,000.00
Enter the Future Value	0	0
	[FV]	0.00
Compute the monthly payment	[PMT]	-396.45

Your payment should equal **(-396.45)**, and remember, because this is an outgoing payment, this answer will always be a *negative* number.



NOTE TO SELF! The above numbers represent a note fully amortized over 120 months. As stated earlier, when a note is **amortized**, it goes, literally, *to its death*. This means that a fully amortized note will have a zero balance at the end of its term. Thus, FV is always 0 when figuring a payment (unless the note is interest only).

CONGRATULATIONS! You’ve just completed your first calculation, and found the payment on a specific note. Pretty simple, wasn’t it? **[[Special Note:** You’d be amazed at how many times we hear a student in class exclaim, “WOW! Is *that* all there is to it?” They expect it to be difficult, and are amazed when they actually “get it”. Remember what I said earlier – it’s only a piece of plastic with some buttons on it!]]

SUMMARY

As usual, when we come to the end of a Section, we’d like you to *Review* the major things we have covered, before moving on. Here are some things you should now know and understand:

- The five parts of a note.
- How to use a Calculator Grid Sheet.
- The function of the five financial cells on your calculator.
- Payment and Future Value are always negative numbers.
- **Write down everything before doing anything.**

And...just for fun...and to see if you really are willing to **participate** (drum roll, please...) the Five Parts of a Loan are:



NOTE TO SELF!

Hint - they correspond to the five keys on Row 1 of the calculator...

Write them down...

1.

2.

3.

4.

5.

Great! Now let's continue!

Section IV:
4 Simple Steps to Success

or...

“Climbing the Ladder with Real World Examples!”

This section of the course deals with the step-by-step method of determining the **value** and **yield** on notes. Use the accompanying GRID sheets and follow along with the examples. Write your numbers in the grid boxes that correspond to the calculator cells.



NOTE TO SELF! Be **SURE** and **WRITE EVERYTHING**
on the Grid **BEFORE DOING ANY CALCULATIONS!!!**

The **Four Steps** that we will always follow are:

1. Calculate Payment
2. Calculate Balloon (if any)
3. Calculate Remaining Balance
4. Solve for required Yield

Please note that with any calculation, you must follow all of these steps to correctly evaluate that particular deal. And yes, these steps **must** be done **in order**. Now, let's explore each step, (pun intended, here), *step-by-step*:

STEP 1 –CALCULATE THE PAYMENT. When you are buying an *existing* note, you'll often find that note sellers are rather vague as to the exact payment

amount they are receiving (they may round to the nearest \$10 dollars). When you are *creating* a note, you also want to know what the payment is, because you may be the one paying it! Either way, *we must make sure this number is correct!*

EXAMPLE: The Note Amount is \$80,000. The interest rate is 9%, and the note is amortized over 20 years. It is *fully amortized*, meaning that there is no balloon due at the end of the note (Remember? *Fully amortized* means that the note dies at the end of the term). **Now then...STOP!! Write it down!** (Don't cheat and look at the answers!)

N	I	PV	PMT	FV

Participation, remember?? Your grid should look like this.

N	I	PV	PMT	FV
240	9	80,000	_____?	0

Now that you've written down the numbers, go ahead and put them in your calculator. Knowing 4 out of the 5 numbers, and solving for **PMT**, your answer will be:

-719.78

Now, **DO NOT** change anything on the calculator! (**Do Not** pass go, **Do Not** collect \$200, and **Do Not** clear the calculator!) The calculator remembers everything in its cells – we’re going to use that to our advantage.

There is no balloon in this note, so let’s skip to Step 3 and calculate the **Remaining Balance**. Sometimes, you may find yourself in a position where you will need to determine the remaining balance of a loan, which has been in existence for some time (a.k.a. a *seasoned* note). There are two different ways to calculate the current balance on a note. Even though we would prefer you to use the first way, we’ll discuss each here.

FIND THE REMAINING BALANCE OF A NOTE

One way of visualizing this is to say that several payments have already been made, and there are only so many remaining that can be purchased. If you look at it in this way, it stands to reason that [**N**] would reflect the number of payments remaining on the note to be purchased, and you would solve for [**PV**]. To find the remaining balance (or present value), subtract the payments made from the original amount of payments, and put the answer into the [**N**] cell. Solve for [**PV**].

EXAMPLE: Let’s continue with our previous example. If you followed instructions and didn’t change the numbers on your calculator, the cells still hold the information you just input: [**PV**] is still \$80,000, [**I**] is still 9%, and [**N**] still contains 240. In other words, the terms of the loan didn’t mysteriously change, and neither did the information you put into the calculator! *Amazing!*

Remember, the note is fully amortized, meaning that there is no balloon, so [**FV**] is zero. Now then, let’s say that 15 months have elapsed since the note was created, and the payor actually made a payment each month! What is the **Present**

Value of this note?? In other words, what is the Principal Balance, or, stated another way, how much of the principal is still owed on the note?

	<u>N</u>	<u>I/Y</u>	<u>PV</u>	<u>PMT</u>	<u>FV</u>
Step 1	240	9	80,000	<u>-719.78</u>	0
<hr/>					
Step 2	<u>225</u>	9	<u>?</u>	-719.78	0

Note that all of the cells remain the same, except [**N**]. To find the present balance, all you need to do is subtract 15 payments from your original 240 payments, leaving you with 225 payments available for purchase. Change the number of months (**N**) to **225**, and solve for [**PV**]. Your answer should be:

\$78,105.83

Put another way: after 15 payments have been made, and with 225 payments remaining on the loan, the payoff, or **Present Value**, is \$78,105.83.

ANOTHER WAY OF DETERMINING REMAINING BALANCE

Another way of determining the remaining balance is by looking at the problem a different way: “*What is the note worth 15 months into the future?*” In other words, if you imagine that today is the day the note was created (you know...project yourself back in time), you need to know the balance 15 months from now. If so, you would change [**N**] to 15, and solve for [**FV**]. Here’s what the calculations would reflect:

	<u>N</u>	<u>I/Y</u>	<u>PV</u>	<u>PMT</u>	<u>FV</u>
Step 1	240	9	80,000	<u>-719.78</u>	0

Step 2 **15** **9** **80,000** **-719.78** **?**

Note that all of the cells remain the same, except [**N**]. Change the number of months (**N**) to **15**, and solve for [**FV**]. Your answer will still be:

\$78,105.83

As we stated earlier, both methods result in the correct answer. The problem as we see it, however, is that when you use the second method (solving for FV), you're stuck with the current balance in your Future Value cell, which can be awfully confusing if you have a balloon, which we'll discuss next. So...our suggestion is to keep it simple!

Use the first method; the only time you should have a number other than zero in your FV cell is if there is a balloon payment in the note. This last statement is a great segue into our next section, but before we introduce the concept of balloons, let's go through one more example – same stuff, different twist!

NEW EXAMPLE: This time, we've found a note where we know the payment, but don't know the interest rate. We still, however, know 4 out of 5 items.



NOTE TO SELF! When entering the payment amount, make sure that you make it a negative number by using the [+/-] key!

Our note is a \$100,000 note, amortized over 30 years with a payment of \$877.57. Go ahead...write it in the grid:

N	I	PV	PMT	FV

Your GRID should now look something like:

N	I	PV	PMT	FV
360	----?----	100,000	-877.57	0

You now know 4 out of the 5 numbers, and by solving for **[I]**, your answer will be: **10%**

STEP 2 – CALCULATING THE BALLOON

As we stated earlier, a balloon is a lump sum payment that usually pays off the entire remaining balance on a note. Remember discussing **Interest Only** loans? In a way, those are *balloon* notes. *Why?* Because you go along from month to month making regular payments, and one day, a large, lump-sum payment (a *balloon payment*) is due!

Let's look at a different example: this time, a note with a balloon. **NOTE: Be sure and clear your calculator before we go on to this next set of calculations.**

Balloon Notes: When running the numbers on a note that has a balloon, you must first figure the payment, putting **0** into **[FV]**. The *payment* is based on the full amortization. Then (step 2), you need to put into **[N]** the number of payments *before* the balloon, and then solve for **[FV]**. Your answer (the *balloon*) represents the principal amount still owed on the note after those payments have elapsed.

EXAMPLE: Let's do a *new example!* Let's say that you sold a property several years ago and created a note between you and the buyer. The note amount was \$120,000, and to make your note competitive for the buyer (and maximize the cash you receive), you amortized it over 30 years at 10%. You didn't want to wait thirty l-o-n-g years for your money, so you wrote a clause into the note that the entire balance was due after 10 years. In other words, this note has a **10-year balloon** in it, meaning that 10 years from the start-date of the note, the remaining balance will be due. Your grid (still writing everything down?) should look like this:

	<u>N</u>	<u>I/Y</u>	<u>PV</u>	<u>PMT</u>	<u>FV</u>
Step 1	360	10	120,000	?	0
Step 2	<u>120</u>	10	120,000	-1053.09	?

After solving for [**PMT**], you'll change the number of months and solve for [**FV**], resulting in an answer of:

-109,125.62

In other words, after 120 payments have been made on this note, the buyer will still owe the outstanding principal balance of **\$109,125.62**



NOTE TO SELF! If a note has a balloon, the payments after the balloon date no longer exist, because the balloon pays it off. In our example above, even though the note started out amortized over 360 months, the 120 month balloon means there are only 120 regular payments in this note (not 360) along with one balloon payment.

Continuing on with our example, let’s say that you’ve carried the note for the last 40 months. Another way to say this is that your note now has 40 months of *seasoning* on it. Even better, your good buyers have actually made all 40 payments! But now, instead of continuing to receive monthly payments, something’s come up and you’d prefer a lump sum of cash. Maybe you’ve got a new workshop to attend (LOL) or maybe you’ve found another investment that will yield you 30% instead of the 10% you’re currently receiving.

At this point, you’ll want to determine two things: What is the payoff on your note (remaining balance), and what is it worth on the open market?

STEP 3 – CALCULATE THE REMAINING BALANCE (today’s payoff).

All the cells remain the same – merely recalculate [N] and solve for [PV]. 40 payments have been made, so we change the [N] key to **80** (120-40=80), and solve for **Present Value**. Our grid (your grid!) should now look like this:

	<u>N</u>	<u>I/Y</u>	<u>PV</u>	<u>PMT</u>	<u>FV</u>
Step 1	360	10	120,000	-1053.09	0
Step 2	<u>120</u>	10	120,000	-1053.09	-109,125.62
Step 3	<u>80</u>	10	?	-1053.09	-109,125.62



NOTE TO SELF! After 40 payments have been made, the **Present Value** of this note, with **80** payments and a **\$109,125.62** balloon payment remaining, is: **\$117,492.10**

STEP 4 – SOLVE FOR REQUIRED YIELD.

The final step is to solve for the note-investor's required yield. In other words, if your note-investor wants a certain rate of return resulting from the purchase of this note, how much will they pay for it?

This is another *simple* step, made even simpler by the fact that the calculator remembers your previous entries. So...all of your cells will remain the same. You merely need to put your investor's desired yield rate into the **[I/YR]** cell, and solve for **[PV]**. The answer will show you what they can pay for this particular note to achieve their desired yield.

Let's say that they require a 12% yield on their money by investing in this note. Your grid should now look like this:

Step 1	<u>N</u>	<u>I/Y</u>	<u>PV</u>	<u>PMT</u>	<u>FV</u>
	360	10	120,000	-1053.09	0
Step 2	120	10	120,000	-1053.09	-109,125.62
Step 3	80	10	117,492.10	-1053.09	-109,125.62
<hr/>					
Step 4	80	<u>12</u>	?	-1053.09	-109,125.62

If you have followed along correctly, you have now figured out that in order to achieve a 12% yield on their money, they can only pay:

\$107,030.52

...for the right to receive the remaining **80** payments of **\$1053.09** and the balloon payment of **\$107,030.52**. By the way, because they're buying all of the remaining payments, this is known as a *full purchase*.

Let's recap the previous example. The steps were as follows:

- Step 1:** Calculate Payment
Step 2: Calculate Balloon
Step 3: Calculate Remaining Balance
Step 4: Solve for Desired Yield

Your Grid should look something like the following (keep in mind that the numbers changed are underlined, while the ones we solved for are in **BOLD**):

<u>N</u>	<u>I/YR</u>	<u>PV</u>	<u>PMT</u>	<u>FV</u>
360	10	120,000	-1053.09	0
<u>120</u>	10	120,000	-1053.09	-109,125.62
<u>80</u>	10	117,492.10	-1053.09	-109,125.62
80	<u>12</u>	107,030.52	-1053.09	-109,125.62

Use the Grids at the end of the manual to complete the remaining practice examples. Label each Grid by example, complete it step-by-step, and make sure that you write everything down on the grid *before* you attempt it on the calculator! And...if it will help you any...we've also included the answers. Good luck!

**Section V:
Practice Calculations**

Now that you’ve become somewhat familiar with the Hewlett Packard HP 10B II, use it often. In short order, you’ll find its operation as automatic as almost anything you do. Once you have mastered these introductory principles, learn some of the many other functions you can do with this investment tool.

For your convenience, the following pages include sample note scenarios for you to calculate. Be sure and utilize the GRID sheets. The answers are located on the pages that follow:

Practice Examples

1. Loan Amount: \$227,500
- Interest Rate: 12.75%
- Term: 30 years
- Balloon: none
- Find: Monthly Payment _____

N	I	PV	PMT	FV

4. Loan Amount: \$90,000
 Term: 20 years
 Payment: \$868.52
 Find: Interest Rate _____

N	I	PV	PMT	FV

5. Term: 30 years
 Interest Rate: 11.5%
 Payment: \$990.29
 Find: Loan Amount _____
 Find: Remaining Balance after 4 years _____
 Find: Purchase Price at a 14.5% yield _____

N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV

6. Loan Amount: \$130,000
 Term: 240 months
 Interest Rate: 9.75%
 Find: Payment _____
 Find: 5-year balloon _____
 Find: Remaining Balance after 1 year _____
 Find: Purchase Price at a 16% yield _____

N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV

SOLUTIONS TO PRACTICE EXAMPLES

1. 227500 [PV]
 12.75 [I/YR]
 30 [GOLD SHIFT] [N]
 0 [FV]
 [PMT] -2,472.23

N	I	PV	PMT	FV
360	12.75	227,500	<u>-2472.23</u>	0

2. 227500 [PV]
 12.5 [I/YR]
 180 [N]
 0 [FV]
 [PMT] -2,803.99

N	I	PV	PMT	FV
180	12.5	227,500	<u>-2803.99</u>	0

3. 210000 [PV]
 9 [I/YR]
 360 [N]
 0 [FV]
[PMT] -1689.71 solve 1st for payment...
 60 [N] ...then solve for the balloon
 [FV] -201,348.29

N	I	PV	PMT	FV
360	9	210,000	<u>-1689.71</u>	0
N	I	PV	PMT	FV
60	No change	No Change	No Change	<u>-201,348.29</u>

4. 90000 [PV]
 240 [N]
 868.52 [+/-] [PMT]
 0 [FV]
 [I/YR] 10.00

N	I	PV	PMT	FV
240	<u>10.00</u>	90,000	-868.52	0

5. 360 [N]
 11.5 [I/YR]
 990.29 [+/-] [PMT]
 0 [FV]
[PV] 99,999.86 *

312 [N]
[PV] 98,063.67

14.5 [I/YR]
[PV] 80,022.63

N	I	PV	PMT	FV
360	11.5	<u>99,999.86 *</u>	-990.29	0
312	No Change	<u>98,063.67**</u>	No Change	No Change
No Change	14.5	<u>80,022.63</u>	No Change	No Change

* When you back into PV like this, chances are that the original loan amount was \$100K. 30 years of calculator rounding result in this 14-cent error.

** Reflects balance after 4 years

***Reflects amount paid for note at desired yield

6. 130000 [PV]
 240 [N]
 9.75 [I/YR]
 0 [FV]
[PMT] -1233.07

60 [N]
[FV] -116,397.52

48 [N]
[PV] 127,780.70

16 [I/YR]
[PV] 105,145.16

N	I	PV	PMT	FV
240	9.75	130,000	<u>-1233.07</u>	0
60	No Change	No Change	No Change	<u>-116,397.52</u>
48	No Change	<u>127,780.70</u>	No Change	No Change
No Change	16	<u>105,145.16</u>	No Change	No Change

REVIEW: Here's that participation part again!! The steps you should take in evaluating a note are, in order:

write them down...

1.

2.

3.

4.



NOTE to SELF! Each time you progress to the next step, you only need to change one cell in the calculator, then solve for the unknown!

Remember: Preview, Do, and Review! “Perfect practice makes perfect.” Don’t try to be a hero when using your calculator for the first time. Use the examples in this text for practice and then, try creating your own. And, if you have any questions about the course, feel free to email us at CallBobFirst@aol.com.

We wish you all of the Success you deserve, and ask you to remember:

- **Have Fun!**
- **The Only Failure is the Failure to Participate!**
- **Take Action Now!**

Bob Leonetti & Jayme Kahla

N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV

N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV

N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV

N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV
N	I	PV	PMT	FV