Saving and Borrowing:

Fun With Real-World Consumer Finance

Time Value of Money Made Easy

Presented by Dean Harris, CPA (ret.) and SavingandBorrowing.org







Thank you to the following for their assistance...

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Why I am here today?

Mainly because I enjoy sharing this skill, and watching y'all "get it" before my very eyes.

High School students will be turning 18 before too long, and people will start beating down their doors to sell credit cards, car loans, and other financial contracts, all with the theme of "buy now, pay later." A tool is needed to equip students with the life skill to help them make more informed decisions.

Personally, this skill has directly helped me as an accountant, commercial real estate appraiser, real estate investor, and college finance instructor. So I know it will help you, too.

You are here today to learn things like...

How much to save monthly to reach a financial goal

How much of a nest egg is needed upon retirement to make monthly withdrawals for a given period of time

What interest rate are you paying on a purchase if it's not otherwise disclosed

And you can relax, because...

Very little math is involved (other than to be able to multiply by 12 on the calculator) in order to learn this Life Skill.

And also, very little memorization is needed. You will understand the concepts rather than memorize them.

Everyone can learn this, I promise!



Time Value of Money (TVM) is kind of related to the phrase "A bird in the hand is worth 2 in the bush."

TVM means that money is worth more now than in the future. The sooner you get it, the more valuable it is to you.

Why Does Money have Value over Time?

The common sense reason is because of INTEREST.

- You Receive interest on your money invested somewhere, and 1)
- 2) You Pay Interest on money you have borrowed.
- So, yes, Interest Is Interesting!

General note: Our problems today do not take into account any effects of income taxes or inflation.

Common Sense Time Value of Money

Question- If you were going to be given \$100, would you care if you received it now, or 10 years from now?

Of course you would! Why? Because there is no incentive to wait for the money.

You could put the money in the bank and be earning a little interest. Plus, it would be available in case of an emergency.

To make learning TVM concepts easy, get ready to meet the star of today's show, the HP 10bll+ Financial Calculator...





Accint	MTY	PRICE	CPN%	CALL
N +P/m	I/YR NOMEN	PV	PMT	FV
D.MY/M.DY	360/Act	Semi/Ann	SetDate	MatDate
INPUT	MU	CST #R/1R	PRC	MAR Beg/Ind
UNITS	SP	- MIAKEVIN -	FC	PROFIT
K	% NOHO	CFj N/	Σ+ Σ-	
SL	SOYD	DB	HYP	INV
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	Ex ²	ΣyJ	Σxy	SIN
	7 x.y	8 \$x,\$y	9 01,0y	1/x
	71	Σx	Σу	cos
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Here is the 10bii Calc:

Time Value of Money Keys:



ator		Ø
PV EFF%	PMT	
mi/Ann CST	SetDate PRC NPV	MatDate MAR Beg/Ind
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5 ∳.m	6 x _₩ ,b Z≓P	
2 IN	3 n/ RAND	Rod/Deg
<i>.</i> /-	DISP	*

Good News! No real note taking for definitions is needed today.

As we work the problems, you will practice enough to soon understand the concepts. Very little memorization is involved.

> Just as an intro, below are the Time Value of Money (TVM) Keys:



Next, we will go over what each TVM Key means.....



N = Number of Months, in Total (Multiply Number of Years x 12)

Example: 4 year loan is $4 \times 12 = 48 \text{ N}$



I/YR = Percent Interest Per Year. (For 6%, enter simply as 6)



PV = Present Value (Today's Loan Amount or Today's Lump Sum Deposit)

For example, if you got a \$15,000 car loan, the PV would be \$15,000.



PMT = Payment (the same amount over and over, often monthly)

These could be payments you make on a loan, payments you make to a savings account, payments from your retirement account, etc.

Note: If entering a loan PMT, make the PMT a negative number by pressing +/after entering the number on the display. This is because the money is going out of your pocket to the bank.

For those of you who would like to learn a couple of fancy words...

All payments we work with today will be assumed to be made at the end of the month. This is referred to as an "<u>ordinary annuity</u>."

But a payment can also occur at the beginning of the month. This is referred to as an "<u>annuity due</u>."

No need to memorize this for today, just FYI.



FV = Future Value (How much a series of Savings Account Deposits, or a single Lump Sum Savings Account Deposit will grow to in the future)



Three Operating Tips

1. Note the Orange Bar key on the lower left side.

Before we work a new problem, we will clear any previous time value of money (TVM) entries. To do so, press the Orange Bar key, then move your finger down and press the C ALL key which is on the bottom of the C key. <u>Don't press them</u> <u>both at the same time.</u>



2. Payments are entered as Negative Numbers. Think of Payments as money paid out of your pocket to someone, so they are entered as negative numbers.

Note the "+/-" key (\pm /--) on the left side about midway down. If entering a Payment, first enter the Payment amount on the display, then press the +/- key to make the Payment number negative. Next, you would just press the PMT key.



3. When entering numbers, use the keypad as outlined in red below. Once you have the number you want on the display, press the TVM key on the top row that is linked to that number.

Let's get started learning a new skill today!

We're now going to pass out the calculators and Problem Sets.

You will also need something to write with.



#1 How much of a loan can I get? First press the Orange Bar key then r

How much of a car loan can you get today if you make a \$300 monthly payment for 36-months at 5.74% APR?

Hint: For your very first entry, I will go step-by-step, and we will work this problem twice. The first time, just watch. When we work it the second time, you will write on your paper, and then make the same entry on the calculator.

To enter the \$300 payment, first enter 300 on the keypad, and then press the "+/-" key to make the payment a negative number. The next slides will show you exactly what to do.



First, press the Orange Bar key, then move your finger down and press the C ALL key.





How much of a car loan can you get today if you make a \$300 monthly payment for 36-months at 5.74% APR?

First, enter 300 on the keypad.







How much of a car loan can you get today if you make a \$300 monthly payment for 36-months at 5.74% APR?

Now, press "+/-" and your display will show -300.







How much of a car loan can you get today if you make a \$300 monthly payment for 36-months at 5.74% APR?

Now, press the "PMT" key to tell the calculator what that number represents.





HP 10bll+ Financial Calculator					
36					
Accint YTM N.P/YR I/YR NOMIS	PRICE PV EFP%	PMT PMT			
DANY/M.DY 360/Act INPUT DATE MU ADAYS	Semi/Ann CST RR/YR	SolDate PRC NEV	MalDate MAR Beg/Ind		
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C All Alg/Chain	2 IN *Cr	3 nl RAND	Rad/Deg		
	•/•	DISP	*		

How much of a car loan can you get today if you make a \$300 monthly payment for 36-months at 5.74% APR?

Now, press 36 followed by the "N" key.







How much of a car loan can you get today if you make a \$300 monthly payment for 36-months at 5.74% APR?

Now, press 5.74 followed by the "I/YR" key.





How much of a car loan can you get today if you make a \$300 monthly payment for 36-months at 5.74% APR?

Now to solve, simply press the "PV" key.









#2) Savings PMT: Saving to become a millionaire First, press the Orange Bar key, then move your finger down and press the C ALL key.

How much of a payment do you have to save per month if you want to have \$1,000,000 in the future if you start saving at age 18 and save until you are 60, while investing in a stock index fund that averages a 10% annual return?







#2) Savings PMT: Saving to become a millionaire

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First, press the Orange Bar key, then move your finger down and press the C ALL key.

Suppose you walk into Yuddy's Rent-to-Own store in Round Rock and see an HP refurbished laptop you want. Today's cash price is \$1,299.99. If you don't have the cash today, they do advertise a financing plan. The Number of payments you will make is 18, in the amount of \$107.99 per Payment.

Question: What annual interest rate are you paying?



COMPUTERS LAPTOP HP refurb 15.6" touch laptop - Peacock Tea HP15DY5008DS

Stock Number 960004862 Serial Number 5CD241CVK



\$107.99 18.0 Months

		78 Weeks Total Cost	Cost of Lease Services
		\$2,105.22	\$805.23
		18.0 Months Total Cost	Cost of Lease Services
		\$1,943.82	\$643.83
3 WAYS TO	FASTER TOTLESSI		R
Ask Plow!	Own It Faster	Pay Monthly	Perfect Pay

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		Total Cost	Services
		\$2,105.22	\$805.23
		18.0 Months Total Cost	Cost of Lease Services
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ASK HOUL	Own It Faster Pound Hex Repidements	Pay Monthly	Perfect Pay

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3 WAYS TO	FASTER TONLESSI		R
Ask Hotel	Own It Faster Postala Has Registernerts	Pay Monthly	Perfect Pay

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		Total Cost	Services
		\$2,105.22	\$805.23
		18.0 Months Total Cost	Cost of Lease Services
		\$1,943.82	\$643.83
3 WAYS TO SAVE	DWN U FASTER TORIESSI		
Ask Hour!	Own It Faster Possible Hee Repidements	Pay Monthly	Perfect Pay



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Question: What annual interest rate are you paying?



The next slide shows a truly outrageous interest rate based on a Payday Loan company flyer I picked up there.

1299.99

18

-107.99



National CSO Loan Corp

Payday Loan \$500, One Payment Cost Disclosure

Cost of this loan:

APR \$ 500.00 **Borrowed amount** Term of loan (cash advance) \$ 1.91 Interest paid to lender (interest rate: 9.95 %) If I pay off Fees paid to the loan \$ 125.00 National CSO Loan Corp in: 2 Weeks **Total of payments** 1 Month \$ 626.91 (if I pay on time) 2 Months 3 Months







#4) PV of a Series of Payments: What is the Retirement Nest Egg Amount? First, press the Orange Bar key, then move your finger down and press the C ALL key.

What amount will you need in the bank when you retire in order to make withdrawals of \$2,000 monthly (hint: payments) for 20 years if interest rates are 4% APR?





What amount will you need in the bank when you retire in order to make withdrawals of \$2,000 monthly (hint: payments) for 20 years if interest rates are 4% APR?

(don't forget to enter the negative sign)







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What amount will you need in the bank when you retire in order to make withdrawals of \$2,000 monthly for 20 years if interest rates are 4% APR?



<u>Before</u> you press the Orange Bar key, then C ALL for the next problem, suppose you had invested differently, and earned a 10% annual return instead?

What amount will you need in the bank when you retire?





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#5) PV of a Series of Equal Payments: How much is your Lump Sum Offer Today? First, press the Orange Bar key, then move your finger down and press the C ALL.

Your doorbell rings, and your Ring App shows the famous Steve Harvey standing there. Oh my word, The Publishers Clearinghouse Sweepstakes has just knocked on your door, and you've won the \$10,800,000 Sweepstakes! They give you the choice of \$30,000 per month (hint: payment) for 30 years, or a lump sum cash payout today.

If annual interest rates are 4.3871134%, how much will they offer you today (PV) as a lump sum payout? (This is the amount they need in the bank today to fund the payments to you.)





HP 10bll+ Financial Calco	ulator		Ø
Accint YTM N -P/YR I/YR NOMIS	PRICE PV EFF%	PMT PMT	
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Your doorbell rings, and your Ring App shows the famous Steve Harvey standing there. Oh my word, The Publishers Clearinghouse Sweepstakes has just knocked on your door, and you've won the \$10,800,000 Sweepstakes! They give you the choice of \$30,000 per month (hint: payments) for 30 years, or a lump sum cash payout today.

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HP 10bll+ Financial Calc	ulator		Ø
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C All I I ex Alg/Chain ON Off I O T	2 LN .Cr ./-	3 nJ RAND E OKSP	Rod/Deg

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HP 10bll+ Financial Calc	ulator		Ø
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First, press the Orange Bar key, then move your finger down and press the C ALL key. But <u>don't press these keys again</u> before you start working on b)

How much would your monthly savings payments be to reach \$1,000,000 in the future at age 65, with a mutual fund earning an average of 10% annual return, if you begin saving at the following ages?



b) Age 51 (don't press the Orange Bar key, and C ALL key.)

















- b) Age 51 (don't press the Orange Bar key, and C ALL key.)



- b) Age 51 (don't press the Orange Bar key, and C ALL key.)







-2,748.69



First, press the Orange Bar key, then move your finger down and press the C ALL key.













#8) Lump Sum Deposit to grow to a FV: Dustin's Retirement Observation

First, press the Orange Bar key, then move your finger down and press the C ALL key.

What if instead of saving monthly, the historical person in the previous problem wanted to make a single lump sum deposit in the bank (think Present Value) at age 100 and just let it grow to \$10,000,000 over 600 years with interest remaining at 2.42% APR. How much would that deposit need to be in year 100?














HP 10bll Financia	+ Il Calco	ulator		Ø
Accint	YTM	PRICE	CPN%	GALL
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First, press the Orange Bar key, then move your finger down and press the C ALL.











HP 10bll+ Financial Calc	ulator		Ø
Accint YTM N I/YR NOMIS	PRICE PV EPPK	PMT PMT	
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What would the payments be on a \$15,000 car loan for 48 months at 7.42% APR?



But **"what if"** you could only afford \$300 per month. What is the number of months the loan would be for?



HP 10bll+ Financial Calc	ulator		Ø
Accint YTM N I/YR NOMIS	PRICE PV EFF%	PMT PMT	
DMY/M.DY 360/Act INPUT DATE MU ADAYS	Semi/Ann CST EX/IR	SetDate PRC	MatDate MAR Reg/Ind
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-What would the payments be on a \$15,000 car loan for 48 months at 7.42% APR? --But if you could only afford \$300 per month, what is the number of months the loan would be for?



But **"what if"** you could only afford \$300 per month. What is the number of months the loan would be for?

-300 PMT





What would the payments be on a \$15,000 car loan for 48 months at 7.42% APR? -



But "what if" if you could only afford \$300 per month? What is the number of months the loan would be for?

-300







#10) Compute I/YR: Calculate the Return Rate used in a Dave Ramsey Video First, press the Orange Bar key, then move your finger down and press the C ALL key.



















#11) Compute I/YR: Round Rock "Stock Market Game" Rock Stars. What is the Annual Yield (think Interest Rate or I/YR) that was earned by this Money Matters student? First, press the Orange Bar key, then move your finger down and press the C ALL key.

On September 20, 2023 a student in RRISD invested \$100,000 in an online simulation called The Stock Market Game. As of March 20, 2024 the value of the portfolio was \$211,266.34. What was the annualized return (I/YR) on this investment?





HP 10bl Financia	l+ al Calc	ulator		(D)
Accint	YTM I/YR	PRICE	CPN% PMT	CALL FV
-P/IR	NOMIS	EFPS	P/WR	AMORT
INPUT	MU	CST	PRC	MAR
	SP	- BREAKEVEN -	FC	PROFIT
K	% NO10	CFJ	2+	END
SL	SOYD	DB	HYP	INV
*/- T	RCL STO	M C STAT	RM	M+
	Ex	Eys	Exy	SIN
	7 x.y	8 Sr.5y	9 0x,0y	JAX
	11	Σx	Σy	cos
	4 \$.r	5 9.m	6 Xw.b	× yx
CMEM	REGR	d∫,t≡P	Z≓₽	TAN
CALL	1 ex	2 N	3 n/	vx l
Alg/Chain	"Pr	"Cr	RAND	Rod/Deg
ON	О π	•/-	DISP	x2

On September 20, 2023 a student in RRISD invested \$100,000 in an online simulation called The Stock Market Game. As of March 20, 2024 the value of the portfolio was \$211,266.34. What was the annualized return on this investment?







HP 10bl Financi	HP 10bII+ Financial Calculator				
Accint	YTM	PRICE	CPN%	CALL	
-P/YR	NOMIS	EFF%	PMR	AMORT	
DMY/MDY	360/Act	Semi/Ann	SetDate	MalDate	
DATE	ADAYS		PRC	Bog/Ind	
UNITS	SP	VC	FC	PROFIT	
SWIND	XCHO	CFJ	2+ I-	END	
SL	SOYD	DB	HYP	INV	
*/-	RCL	M C STAT	RM	M+	
	Ex2	Σy	Exy	SIN	
	7 5 .9	8 \$1,5y	9 0x,0y	J/x	
	RA I	Ex	Σy	cos	
	4 \$.r	5 9.m	6 Xw.b	× yx	
CMEM	REGR	d∫,t≡₽	Z≓₽	TAN	
CALL	1 ex	2	3	VX	
Alg/Chain	"Pr	"Cr	RAND	Rod/Deg	
ON	О π	•/•	DISP	(*)	

On September 20, 2023 a student in RRISD invested \$100,000 in an online simulation called The Stock Market Game. As of March 20, 2024 the value of the portfolio was \$211,266.34. What was the annualized return on this investment?





HP 10bl Financia	l+ al Calc	ulator		(D)
Accint N •P/YR	YTM I/YR NOMIS	PRICE PV EFP%	PMT P/m	
	360/Act	Semi/Ann CST	SetDate PRC	MatDate MAR
	SP %	CFJ	FC E+	PROFIT
SL +/-	RCL		RM	
	570 522	E STAT	Exy 9	SIN
	x.y	Sr,Sy Ex	σx,σy Ey	cos
	REGR	5 ∮.m df,t≅₽	6 ⊻w,b Z≓₽	TAN
		2 IN		Rod/Deg
ON	О π	•		*

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HP 10bll+ Financial Calo	ulator		Ø
Accint YTM N P/TR I/YR NOMS	PRICE PV EFF%	PMT PMT	CALL FV AMORT
DANY/M.DY 360/Act INPUT DATE MU ADAYS	Semi/Ann CST IRZ/YR	SetDate PRC	MalDate MAR beg/brd
K SWAP SL SL SL SL SL SL SL SL SL SL SL			
	-M c stat Eyt		M+ SIN
	sr,sy Σx 5	σx,σy Σy 6	
CMEM REGR	ý.m df,t≓⊥P 2	Z:::P 3	
Alg/Chain ON OFF 0 π	.C. ./.	RAND	Rod/Dog

#12) PV: Accept the Lump Sum or Take a Monthly Payout First, press the Orange Bar key, then move your finger down and press the C ALL key.

Suppose a relative who has worked a long time for a large company is retiring. As part of their retirement benefits, the employer offers them the choice between the following retirement options:

A. \$600,000 lump sum paid today. (So \$600,000 is the PV for this Option A.) B. Payments of \$3,000 per month guaranteed for 25 years. Interest rates are 4% annually. (Calculate the PV of this option.)





HP 10bll+ Financial Calc	ulator		Ø
Accint YTM N P/YR I/YR NOMIS	PRICE PV EFF%	PMT PMT	
DANY/M.DY 360/Act INPUT DATE MU ADAYS	Semi/Ann CST BR/YR	SetDate PRC	MatDate MAR Beg/Ind
SL OUTPREATION			
	-M c star Eyj		
	Sr, Sy Ex	σx,oy Σy	
C MEM REGR	9.m df,t=:P 2	x _w ,b Z≓₽	TAN
Alg/Chain ON Off	•Cr	RAND	Rod/Deg
	•/•	CKSP	(±)

Suppose a relative who has worked a long time for a large company is retiring. As part of their retirement benefits, the employer offers them the choice between the following retirement options:

A. \$600,000 lump sum paid today. (So \$600,000 is the PV for this Option A.)
B. Payments of \$3,000 per month guaranteed for 25 years. Interest rates are 4% annually. (Calculate the PV of this option.)







HP 10bll+ Financial Calco	ulator		Ø
Accint YTM N I/YR NOMIS	PRICE PV EFF%	PMT PMT	
DATE 360/Act	Semi/Ann CST RR/MR	SetDate PRC NPV	MalDate MAR Beg/Ind
SL SOYD	CFJ NJ DB		
*/- KCL STO XX2	M C STAT Eys		M+ SIN
	Sx,Sy Sx	σx, σy Σy	cos ×
CIMEMI C ALL I	∮.m d∫,t∷:P 2	x _w ,b Z≓₽ 3	
Alg/Chain ON Off f	UN .Cr ./-		Rod/Deg

Suppose a relative who has worked a long time for a large company is retiring. As part of their retirement benefits, the employer offers them the choice between the following retirement options:

A. \$600,000 lump sum paid today. (So \$600,000 is the PV for this Option A.)
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HP 10bll+ Financial Calco	ulator		Ø
Accint YTM N I/YR NOMIS	PRICE PV EFF%	PMT PMT	
DATE 360/Act	Semi/Ann CST RR/MR	SetDate PRC NPV	MalDate MAR Beg/Ind
SL SOYD	CFJ NJ DB		
*/- KCL STO XX2	M C STAT Eys		M+ SIN
	Sx,Sy Sx	σx, σy Σy	cos ×
CIMEMI C ALL I	∮.m d∫,t∷:P 2	x _w ,b Z≓₽ 3	
Alg/Chain ON Off f	UN .Cr ./-		Rod/Deg

Suppose a relative who has worked a long time for a large company is retiring. As part of their retirement benefits, the employer offers them the choice between the following retirement options:

A. \$600,000 lump sum paid today. (So \$600,000 is the PV for this Option A.)
B. Payments of \$3,000 per month guaranteed for 25 years. Interest rates are 4% annually. (Calculate the PV of this option.)





HP 10bl Financi	ll+ al Calc	ulator		Ø
Accint N -P/MR	YTM I/YR NOMIS	PRICE PV EFF%	PMT PMT	CALL FV AMORT
	360/Act MU ADAYS	Somi/Ann CST RR/YR - IMFAKEVIN -	SetDate PRC Nev	MalDate MAR Reg/Ind
SL		CFJ N DB		
	RCL STO Ex ²	-M c stat Eyd 8	RM 2xcy 9	M+ SIN
	x.y n 4	Sr.Sy Ex 5	ox,oy Ey	
C MEM	REGR	df,r==P 2 IN	Ztt:P 3 nl	
Alg/Chain ON Off	л П П	•Cr	RAND	Rod/Deg

Suppose a relative who has worked a long time for a large company is retiring. As part of their retirement benefits, the employer offers them the choice between the following retirement options:

A. \$600,000 lump sum paid today. (So \$600,000 is the PV for this Option A.)
B. Payments of \$3,000 per month guaranteed for 25 years. Interest rates are 4% annually. (Calculate the PV of this option.)





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That's All, Folks!

105



Problem / Answer Key

Question #	Page #	Answer Page #
1	27	33
2	35	39
3	41	45
4	48	52
5	54	58
6	60	66
7	68	72
8	74	78
9	80	86
10	88	92
11	94	98
12	100	104

Q: 27,35,41,48,54,60,68,74,80,88,94,100

A: 33, 39, 45, 52, 58, 66, 72, 78, 86, 92, 98, 104

The print order in PPT with pdf995 is: 2,1,4,3,6,5,8,7,10,9,12,11 then save that file as the last step before opening up 108 Adobe to continue.




#13) FV of Savings: Monthly Savings Deposits for Car Down Payment First, press the Orange Bar key, then move your finger down and press the C ALL key.

Let's say you put \$100 monthly in a savings account for 36 months that earns 4.17% APR to save for a down payment on a car.

Question: How much will your savings grow to in the future, as in the Future Value?

Now, please follow along and write down on your Problem Set exactly what is shown on each of the following PowerPoint (PPT) slides.







Let's say you put \$100 monthly in a savings account for 36 months that earns 4.17% annual percentage rate (a local institution offers this) to save for a down payment on a car.

Question: How much will your savings grow to in the future, as in the Future Value? First, press "100" on the keypad to enter it on the display. (I have left off the ".00" digits)







Let's say you put \$100 monthly in a savings account for 36 months that earns 4.17% annual percentage rate (a local institution offers this) to save for a down payment on a car.

Question: How much will your savings grow to in the future, as in the Future Value?

Next, press the "+/-" key to change the sign to a negative, which indicates something paid out of your pocket and put in the bank.





HP 10bll+ Financial Calculator				
-100	0.00			
Accint Y N P/TR	TM PRICE YR PV MINS EFFNS			
DANY/M.DY 360	Act Semi/Ann AU Avs CST BRAKEVEN -	SetDate PRC	MatDate MAR Beg/Ind	
		FC Z+ E- FYP		
	CL TO C STAT	RM C Exy	M+ SIN	
	8 8 .ÿ \$x,5y n \$x 4 5	φ σx, σy Σy	cos	
	k,r 9,m KGR d∫,t≕P 1 2			
Alg/Chain ON off		RAND E DISP	Rod/Deg	
UNITS SL SL SL SL SL SL SL SL SL SL SL SL SL	SP VC SP VC SP CFJ NJ DB CL M CL M STAT System To Stat SY B ST, Sy Stat To Stat SY B ST, Sy Stat ST, Sy Stat ST, Sy Stat ST, Sy Stat Stat Stat	FC E+ E- FMP RM (Excy 9 0x, 0y Ey 6 Ey Cx, b Z:=P 3 nl RAND = DESP	PROFIT PROFIT	

Let's say you put \$100 monthly in a savings account for 36 months that earns 4.17% annual percentage rate (a local institution offers this) to save for a down payment on a car.

Question: How much will your savings grow to in the future, as in the Future Value?

Now, press the "PMT" key to tell the calculator that is the key associated with the number shown on the display.

-100







Financia	+ I Calcı	ulator		(p)
36	.00			
Acclut N •P/AR	YTM I/YR NOMIN	PRICE PV EFF%	PMT P/MR	
	360/Act MU ADANS SP % NOHO SOYD SSOY	Somi/Ann CST BREACTION - CFJ N/ DB M CSTAT Lyd 8 ST., Sy Lx 5 9, m df,t==P 2 IN	SotDato PRC NOV FC S+ E- FM RM (Excy Sy Sy Sy Sy Sy Sy CrDy Excy Sy Sy Sy Sy Sy Sy Sy Sy Sy Sy Sy Sy Sy	MaiDans MAR Sep/Ind PROFIT PROFIT PROFIT SIN SIN SIN COS X yr TAN TAN TAN TAN TAN

Let's say you put \$100 monthly in a savings account for 36 months that earns 4.17% annual percentage rate (a local institution offers this) to save for a down payment on a car.

Question: How much will your savings grow to in the future, as in the Future Value?

From here on, these answer pages will show both the numerical entry to write on the horizontal line, and then the associated TVM key to write inside the square box.







Let's say you put \$100 monthly in a savings account for 36 months that earns 4.17% annual percentage rate (a local institution offers this) to save for a down payment on a car.

Question: How much will your savings grow to in the future, as in the Future Value?





Calculator		(D)
7.80		
TM PRICE YR PV EFF%	CPN% PMT P/MR	
Act Semi/Ann CST RZ/R	SetDate PRC	MalDate MAR Reg/Ind
	FC E+ E- FYP	
CL TO C STAT Sx ² Sy ³		
δ s .ÿ \$x,5y n \$x 4 5	φ σx, σy Σy	cos ×
r §.m (g. df,r== P 2	x,,b Z:::₽ 3	
Pr		Rod/Deg
	Calculator 7.80 7.80 M PRICE PV PV PV PV PV PV PV PV PV PV	Calculator 7.80 M PRICE YR PV YR SoftDate YR

Let's say you put \$100 monthly in a savings account for 36 months that earns 4.17% annual percentage rate (a local institution offers this) to save for a down payment on a car.

Question: How much will your savings grow to in the future, as in the Future Value?



