ARE YOU READY FOR THE QUIZ?

Conditions of an Annuity and Using the TI-Nspire Finance Solver

Learning goals
- use a loan calculator to look for patterns
- learn to use the calculator to solve financial problems
- recognize the variables used (given or required)

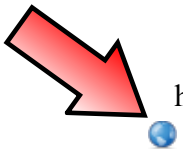
Interest rates and the frequency of the payments will greatly affect the amount of money earned / repaid.

Go to the following website to see how things change.

https://www.cibc.com/ca/loans/calculators/line-of-credit-calculator.html

Upon graduation you would like to buy a car to reward yourself for a job well done. The car costs $19000, the interest rate is 6.5%, and you plan to repay the money in 3 years with monthly payments.

You want to know what your best options are.
Fill in the chart to determine what you should do.



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Loan Amount	Interest Rate	Term	Payment Frequency	Payment Amount	Total Payment for a year	Total Interest for the Term
$19000	**6.5**	3 yrs	monthly			
$19000	7	3 yrs	monthly			
$19000	**7.5**	3 yrs	monthly			
$19000	**8**	3 yrs	monthly			

$19000	7	3 yrs	**Semi-monthly**			
$19000	7	3 yrs	**Bi-weekly**			
$19000	7	3 yrs	**weekly**			

Loan Amount	Interest Rate	Term	Payment Frequency	Payment Amount	Total Payment for a year	Total Interest for the Term
$19000	**6.5**	3 yrs	monthly	582	6984	1964
$19000	7	3 yrs	monthly	587	7044	2120
$19000	**7.5**	3 yrs	monthly	591	7092	2277
$19000	**8**	3 yrs	monthly	595	7140	2434

interest ↑ $ ↑

∴ choose ↓ interest rate

$19000	7	3 yrs	**Semi-monthly**	293	7032	2092
$19000	7	3 yrs	**Bi-weekly**	270	7020	2090
$19000	7	3 yrs	**weekly**	135	7020	2078

compounding ↑ $ ↓

∴ choose to pay more often

$19000	7	2 yrs	monthly	851	10212	1416
$19000	7	4 yrs	monthly	455	5460	2839
$19000	7	5 yrs	monthly	376	4512	3573

length of time ↑ $ ↑

∴ choose shortest time

$18000	7	3 yrs	monthly	556	6672	2008
$17000	7	3 yrs	monthly	525	6300	1897
$16000	7	3 yrs	monthly	494	5928	1785

amount of loan ↓ $ ↓

∴ less amount

How to open the 'Finance Solver' Window:

For HANDHELD Calculators

Steps

1. open a 'New Document'
   - then 'Add Calculator'

2. click MENU
   - select '8: Finance'
     - select '1: Finance Solver...'

How to use the Finance Solver:

N = # of total compounding periods
I(%) = annual interest rate (do NOT change to a decimal)
PV = Present value (0 if unknown)
Pmt = Payment
FV = Future value (0 if unknown)

PpY = Payments per year

CpY = Compounding periods per year

PmtAt = When is the payment made(leave as END)

Note: PpY and CpY must always be the same

For ipads

go to

http://www.zenwealth.com/BusinessFinanceOnline/TVM/TVMCalcWindow.html

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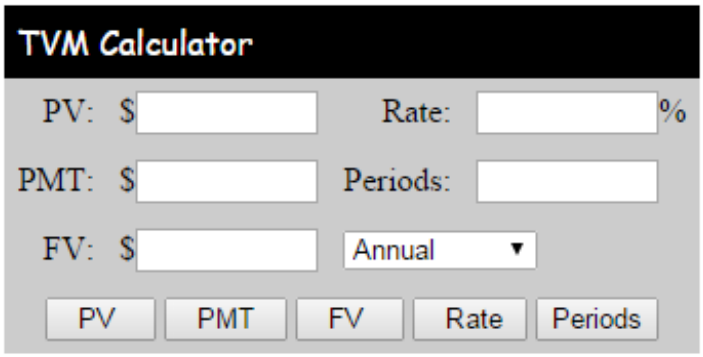

Periods -- number of compounding periods

Annual -- drop down menu for compounding periods / year

Geza took out a loan of $5000 to buy a new car. The conditions of the bank state that interest on the loan will be 6% per year, compounded monthly. How much will he owe the bank after 4 years?

Period

N = 48
I(%) = 6
PV = 5000
Pmt = 0

FV = 6352.45
PpY = 12
CpY = 12
PmtAt = END

monthly

In three years time, Lajos's friends want him join them on a back-packing trip across Europe. The trip will cost about $4500. The best investment plan he could find offers him 4% per year, compounded quarterly? How much money does he need to invest now to be able to pay for her trip in three years time?

N = 12
I(%) = 4
PV = 3993.52
Pmt = 0

FV = 4500
PpY = quarterly
CpY = quarterly
PmtAt = END

What annual interest rate was charged if an $800 credit card bill grew to $920.99 in 6 months and interest was compounded monthly?

N = 6
I(%) = 28.5%
PV = 800
Pmt = 0

FV = -920.99
PpY = monthly
CpY =
PmtAt = END

Istvan makes deposits of $300 semi-annually into an account that pays 4%/year interest compounded semi-annually.

How much money will be in his account after 5 years?

N = 10
I(%) = 4
PV = 0
Pmt = 300

FV = 3284.92
PpY = semi-
CpY = annually
PmtAt = END

Miklos has purchased a bike for $1500. He is making monthly payments to the store for 2 years. The store charges 11%/year interest compounded monthly.

How much is each monthly payment?

N = 24
I(%) = 11
PV = 1500
Pmt = 69.91

FV = 0
PpY = monthly
CpY =
PmtAt = END

Seatwork

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