

9.2.3 Compound Interest with Technology

\$500 is invested at 4% compounded quarterly. How long would it take to grow to \$600?

TVM

Time value of money is the idea that money available at the present time is worth more than the identical sum in the future due to its potential earning capacity. This idea relies on the idea of interest.

The graphing calculator has a useful program called the TVM Solver. It can be used to solve compound interest problems. Simple interest problems CAN NOT be solved using the TVM Solver.

Calculator:

[apps] [enter] [enter]

The screen you see should look something like this (some of the entries may not be the same):

```

N=0
I%=0
PV=0
PMT=0
FV=0
P/Y=1
C/Y=1
PMT:[END] BEGIN
  
```

Definitions of the variables:

N _____

I% _____

PV _____

PMT is any fixed payment that is made each period. For a compound interest question, this value is 0

FV _____

P/Y is the number of payments per year. In the case of a compound interest problem, this is the number of times interest is deposited into the account

C/Y _____

Note:

When using the TVM Solver, you must indicate the flow of money by using a negative sign. Look at the problems from your point of view ... any money that goes away from you is _____ and money that comes to you is _____.

An investment will be _____ because you are spending money at the beginning and a loan will be _____ because you are given the money at the beginning.

Make sure that END is highlighted. END means that contributions are made at the end of an investment period and BEGIN means that contributions are made at the beginning of the period.

To solve for the unknown variable, move the cursor to the variable, then _____

Calculate the value of an investment of \$1000 compounded quarterly for 2 years at 5.8% per year.

N	_____	FV	_____
I%	_____	P/Y	_____
PV	_____	C/Y	_____
PMT	_____		

Calculate the amount paid on a loan of \$5000 compounded semi-monthly for 4 years at 6.5% per year.

N	_____	FV	_____
I%	_____	P/Y	_____
PV	_____	C/Y	_____
PMT	_____		

How much was invested at 4% compounded semi-annually for 3 years if the final amount was \$7500?

N _____

FV _____

I% _____

P/Y _____

PV _____

C/Y _____

PMT _____

What interest rate was charged if a \$650 credit card bill grew to \$750 in 6 months compounded monthly?

N _____

FV _____

I% _____

P/Y _____

PV _____

C/Y _____

PMT _____