7.2 Compound Interest

Present Value (P or PV):

- Principal that needs to be invested/borrowed now to achieve a future goal.
- PV can be calculated when the interest rate, compounding period and length of term are known.

Present Value Formula: Use compound interest formula, rearranged for "P".

Ex. 1 Julia wants to have \$5000 in 2 years to use as a down-payment for a car. How much does she need to invest now at 6.3%/a compounded monthly?

Ex. 2 David plans to put money into an RESP so that he has \$9000 in 5 years. Which option is the best deal for David?

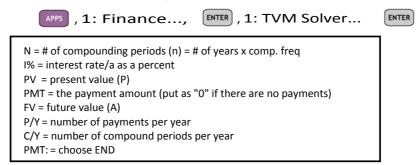
a) 7.2% compounded semi-annually

b) 6.5% compounded bi-weekly

The TVM Solver

A program on the graphing calculator used for financial calculations.

To find the TVM Solver program:

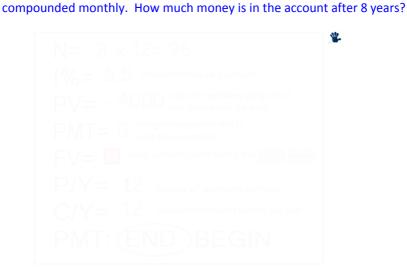


Money that is paid (money out)- should be entered as a <u>negative</u> value Money that is received (money inflow)- should be entered as a <u>positive</u> value

* ONE of PV / PMT / FV must be positive, one negative, one zero

To determine a value:

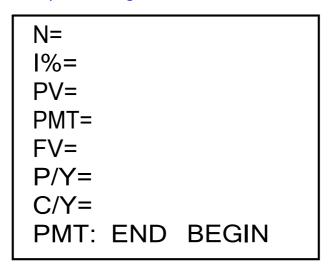
Ex. 3 Harriet invested \$4 000 in an investment fund that pays 6.5%/a



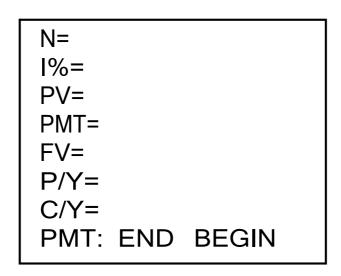
Ex. 4 How much do you need to invest now at 8.2%/a compounded quarterly to have \$20 000 in 5 years?

N=			
I%=			
PV=			
PMT=			
FV=			
P/Y=			
C/Y=			
PMT:	END	BEGIN	

Ex. 4 Graham deposits \$4500 into an account paying 3.5%/a compounded monthly. How long will it take him to have \$8000 to buy a motorcycle?



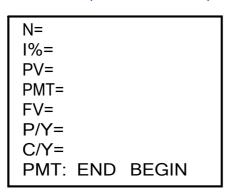
Ex. 5 Jason invested \$1200 in a fund that compounded interest semiannually. At what rate did he invest at if he earned \$500 interest in 6 years?



Ex. 6 Which investment will reach \$10 000 faster?

A: \$7500 invested at OR 4.5%/a compounded monthly

B: \$8200 invested at 4.2% compounded semi-annually



N= I%= PV= PMT= FV= P/Y= C/Y= PMT: END BEGIN Ex. 7 Go back to examples 1 and 2 and use the TVM solver to check your answers.

Ex. 8 Brian is investing \$6800 at an interest rate of 7% per annum, compounded quarterly, for 2 years. Then, he will invest the amount plus additional money at 6.5%/a, compounded semi-annually, for 3 years. At the end of the second investment, he wants to have \$15 000. How much extra must he invest for the second investment?