

Using the TVM Solver to Calculate Mortgage Payments

This worksheet will show you how to use the TVM solver to calculate mortgage payments. You can use it with the Tech Tip on pages 170–171.

- 1. a)** Kara is buying her first home for \$255 000. Kara plans to make a 5% down payment and mortgage the rest. Her bank offers a 4.69% interest rate for a 5-year fixed rate mortgage based on an amortization period of 25 years. How much of a mortgage does Kara need?

Check off each step as you complete it.

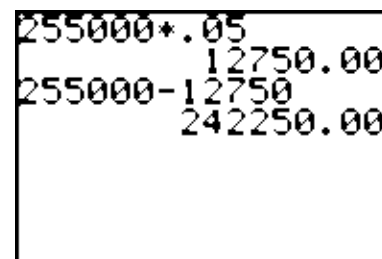
- ☐ Calculate the down payment.

$$\$255\,000 \times 5\% = \$\underline{\hspace{2cm}}$$

- ☐ Subtract the down payment from the price of the house.

$$\$255\,000 - \$\underline{\hspace{2cm}} = \$\underline{\hspace{2cm}}$$

Kara needs a mortgage for \$.



- b)** Use the TVM solver to determine Kara's monthly mortgage payment.

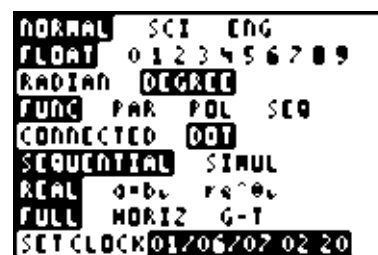
- ☐ Set the calculator mode to display two decimal places. Press **MODE**, scroll down one to **FLOAT**, then right to **2**. Press **ENTER**. Press **CLEAR**.

- ☐ Access the TVM solver. Press **APPS**. Select **Finance...**, and then, **TVM Solver...**

- ☐ Set the variables.

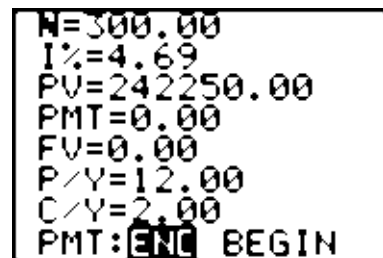
- N is the number of payments. You can enter **12*25**. N = .
- I% is the interest rate in %. I% = .
- PV stands for . This is the amount borrowed.

$$PV = \underline{\hspace{2cm}}$$



- PMT stands for Payment. This is the value we want to calculate. Let $PMT = 0$ for now.
- FV is the _____ of the mortgage after all of the payments are made. Set $FV = 0$.
- P/Y stands for _____. Since Kara is making monthly payments, set $P/Y = 12$.
- C/Y is the number of times the interest is compounded in one year. All fixed rate mortgages in Canada have interest compounded twice per year. $C/Y = 2$.
- The last line deals with when payments are due. The first payment is due at the END of the first month, so **END** needs to be highlighted.

When you are finished, your screen should appear like the one shown.



```
N=300.00
I%=4.69
PV=242250.00
PMT=0.00
FV=0.00
P/Y=12.00
C/Y=2.00
PMT:END BEGIN
```

- ☐ After you set all of the variables, scroll up to **PMT**. Press **ALPHA**, then **ENTER** to access **SOLVE**. The payment will be displayed.

PMT = \$ _____

Notice that the answer is negative. The TVM solver distinguishes between money received (+) and money given (-). The negative value makes sense, since each payment is money that Kara gives up.

