HOMEWORK...

p. 530:   #4, #7-10, 13, 15, 16, 17

⑧

N= **total # of payments [** *payments* **x term]**
I%= **interest rate [enter as a %]**
PV= **loan amount [subtract down payment if given]**
PMT= **payment amount [negative #]**
FV= **set equal to zero...pay loan off after end of term**
P/Y= **number of payments per year**
C/Y= **compounding period per year**
PMT:**END** BEGIN

8. Lissa, the owner of a health food store, was advanced $15 000 by
   an investor. She signed a promissory note that stated the conditions
   of the loan: interest will accumulate at a rate of 2.6%, compounded
   quarterly, and payments of $1200 will be made at the end of every
   3-month period.   *All*
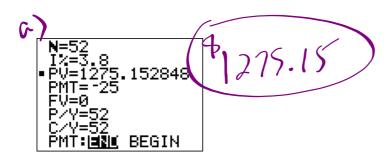   a) How long will it take Lissa to repay her investor? $t = 3$
   b) How much interest will Lissa pay?

a)

■N=13.07943693   ← 13.08 payments = 3.27 years
I%=2.6
PV=15000 $\dfrac{}{4}$
PMT=-1200
FV=0
P/Y=4
C/Y=4
PMT:**END** BEGIN

b) PMT × N   *Payout*
                  Interest

1200*13.08
              15696
Ans-15000
              696
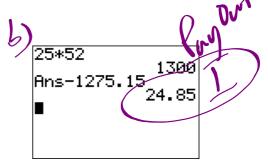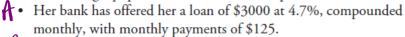
9. Vicky wants to customize her car so that she can enter some races. She negotiates a loan at 3.8%, compounded weekly, with regular payments of $25 at the end of each week. She wants to repay the loan in 1 year.
   a) What is the most she can borrow? $P = ?$
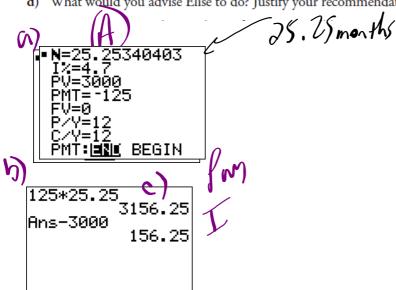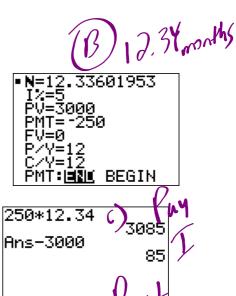   b) How much will she pay in interest?

a)

```
N=52
I%=3.8
▪PV=1275.152848
PMT=-25
FV=0
P/Y=52
C/Y=52
PMT:END BEGIN
```

$1275.15

b)

```
25*52
            1300
Ans-1275.15
         24.85
■
```

Pay Out

16. Elise is the owner of Café Patisserie. She needs to upgrade her coffee-making equipment. She has two loan options:

A • Her bank has offered her a loan of $3000 at 4.7%, compounded monthly, with monthly payments of $125.

B • Her investors have offered her the $3000 at 5%, compounded monthly, with monthly payments of $250.

a) What is the term of each loan option?
b) How much interest would Elise need to pay for each loan option?
c) What is the total she would pay, including principal and interest, for each loan?
d) What would you advise Elise to do? Justify your recommendation.

p. 530

a) (A)   25.25 months

```
■N=25.25340403
 I%=4.7
 PV=3000
 PMT=-125
 FV=0
 P/Y=12
 C/Y=12
 PMT:END BEGIN
```

b)
```
125*25.25
           3156.25
Ans-3000
            156.25
```

c) Pay I

(B) 12.34 months

```
■N=12.33601953
 I%=5
 PV=3000
 PMT=-250
 FV=0
 P/Y=12
 C/Y=12
 PMT:END BEGIN
```

c)
```
250*12.34
           3085
Ans-3000
             85
```
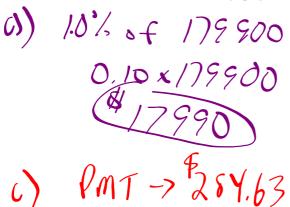Pay I

Best

7. Sara and Sylvie have found a small house in the St. Norbert neighbourhood of Winnipeg. They can buy the house for \$179 900. After negotiating with their bank, they have been offered a mortgage for 90% of the cost at 4.5% compounded semi-annually, with regular weekly payments for 15 years.
   a) How much will the down payment be?
   b) How much will the principal of the mortgage be?
   c) What will the regular payment amount be?
   d) How long will it take before they have paid off half the loan?
   e) How much interest will they pay in all?

$N = ?$

a) 10% of 179 900

0.10 × 179900

$\boxed{\$ 17990}$

b) 179 900
− 17990
─────────
161 910

c) PMT → \$284.63

```
N=780
I%=4.5
PV=161910
■ PMT=-284.63044...
FV=0
P/Y=52
C/Y=2
PMT:END BEGIN
```

*d)   453.9 months

```
■ N=453.9094308
  I%=4.5
  PV=161910
  PMT=-284.63044...
  FV=-80955
  P/Y=52
  C/Y=2
  PMT:END BEGIN
```

e)
```
284.63*780
          222011.4
Ans-161910
           60101.4
```

Pay Out
I

9.2

PAGE 536

Exploring Credit Card Use

❷ Which credit card is the better option for Jayden, and why?

Solution is given below...

With TVM-Solver...

A)
```
N= SOLVE...28.34
I%=14.5
PV=2623.95
PMT=-110
FV= 0
P/Y=12
C/Y=365
PMT:END BEGIN
```
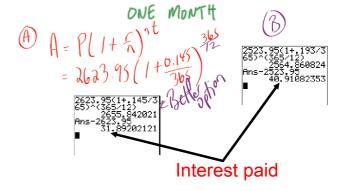
He pays...

28.34 x 110 = $3117.40 **BETTER OPTION**

B)
```
N= SOLVE...28.92
I%=19.3
PV= 2523.95
PMT=-110
FV= 0
P/Y=12
C/Y=365
PMT:END BEGIN
```

He pays...

28.92 x 110 = $3181.20

By hand...

ONE MONTH

Ⓐ $A = P\left(1 + \frac{r}{n}\right)^{nt}$

$= 2623.95\left(1 + \frac{0.145}{365}\right)^{\frac{365}{12}}$

← Better option

```
2623.95(1+.145/3
65)^(365/12)
        2655.842021
Ans-2623.95
        31.89202121
```

Ⓑ
```
2523.95(1+.193/3
65)^(365/12)
        2564.860824
Ans-2523.95
        40.91082353
```

Interest paid

In Summary   PAGE 536

Key Ideas

- Incentives or promotions are sometimes offered to entice people to use credit cards. For example, an immediate cash rebate may be offered on the first purchase using a credit card. Low interest rates, rewards, or no annual fees may also be offered.
- The full cost of borrowing should be considered before making a decision about using a credit card. This includes the total interest charged, as well as the total payments and the time it will take to pay off the balance.

Need to Know

- Credit cards usually have a minimum amount that must be paid each month, based on a percent of the outstanding balance. If there is no outstanding balance from the previous month and the new balance is paid off in full by the payment due date, no interest is charged.
- If a credit card does not have an outstanding balance and it is used for a single purchase, it can be treated as a loan. The purchase price is the principal borrowed, and regular payments can be made until the balance is paid off.
- The cost of using credit is not just the amount of interest charged. There are incentives, such as cash rebates, that reduce the principal. This may end up costing more in interest but result in a lower total loan payment amount.

Copy highlighted information into your notes titled 'Credit Cards'

- incentives/promotions are used.
  - must be 18 yrs
  - are cards with low interest (pay higher annual fee)
  - are cards with no annual fee (rate is higher)
  - minimum payment (10% of owe)
- 30 day grace period after that interest charged

HOMEWORK...

Use the TVM-Solver for each of the following...

p. 538: #1 - 4

NOTE: Have screenshots ready if not done!

Cash Rebate - $ given back at the end of fixed amount of time...can be used towards paying off a purchase