Homework Questions

p. 530 Revisit #15 & 16 & 17

15. For the upcoming season, Mike plans to buy a new biathlon rifle that costs $2152.

- The sporting goods store has offered to finance the purchase at 16.5%, compounded monthly, for a term of 3 years with payments at the end of each month.
- Mike could also borrow the money from a bank at 8.5%, compounded weekly, for a term of 2 years with weekly payments.

a) How much would the rifle cost if he financed it through the store?
b) How much would the rifle cost if he financed it through the bank?
c) What is the difference in the amount of interest that Mike would pay for the two loans?
d) What features of the loan from the sporting goods store might encourage Mike to choose it over the bank loan?

a) Store

```
N=36
I%=16.5
PV=2152
PMT=-76.190231...
FV=0
P/Y=12
C/Y=12
PMT:END BEGIN
```

```
76.19*36
              2742.84
```

Pay Out

b) BANK

```
N=104
I%=8.5
PV=2152
PMT=-22.517830
FV=0
P/Y=52
C/Y=52
PMT:END BEGIN
```

```
22.52*104
              2342.08
```

Pay Out

c)

```
2742.84-2152
             590.84
2342.08-2152
             190.08
590.84-190.08
             400.76
```

I @ Store
I @ bank
Difference

d) Faster

7. Connor is negotiating the purchase of a new car and has two options:
   Option A: Borrow $21 000 at 1.8%, compounded monthly, with a term of 4 years, and pay off the loan by making regular monthly payments.
   Option B: Pay $5000 at the time of purchase. Borrow $16 000 at 1.8%, compounded monthly, for a term of 3 years, and pay off the loan with regular monthly payments.
   a) For each option, what is the regular monthly payment?
   b) For each option, what is the total amount of interest?
   c) What would you advise Connor to do? Justify your recommendation.

a)

A

```
N=48
I%=1.8
PV=21000
PMT=-453.77638...
FV=0
P/Y=12
C/Y=12
PMT:END BEGIN
```

B

```
N=36
I%=1.8
PV=16000
PMT=-456.89560...
FV=0
P/Y=12
C/Y=12
PMT:END BEGIN
```

b)

```
453.77*48
          21780.96
Ans-21000
            780.96
```

Pay I

```
456.89*36
          16448.04
Ans-16000
            448.04
```

+5000 = 21448.04

c) Option B
- less interest
- PMT is same
- pay quicker

Compare credit options that are available to consumers.

EXPLORE the Math

Jayden saw the new sound system he wanted on sale for $2623.95, including taxes. He had to buy it on credit and had two options:

- Use his new bank credit card, which has an interest rate of 14.5%, compounded daily. (Because this credit card is new, he has no outstanding balance from the previous month.)
- Apply for the store credit card, which offers an immediate rebate of $100 on the price but has an interest rate of 19.3%, compounded daily.

As with most credit cards, Jayden would not pay any interest if he paid off the balance before the due date on his first statement. However, Jayden cannot afford to do this. Both cards require a minimum monthly payment of 2.1% on the outstanding balance, but Jayden is confident that he can make regular monthly payments of $110.

BANK

```
N=28.3411992
I%=14.5
PV=2623.95
PMT=-110
FV=0
P/Y=12
C/Y=365
PMT:END BEGIN
```

28.34 months

28.92

STORE

```
N=28.92467766
I%=19.3
PV=2523.95
PMT=-110
FV=0
P/Y=12
C/Y=365
PMT:END BEGIN
```

```
28.34*110
            3117.4
Ans-2623.95
             493.45
```

← Pay →

← Interest →

```
28.92*110
            3181.2
Ans-2523.95
             657.25
```

BEST

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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'

- Visa & Mastercard

- Pay monthly payments

- No interest if paid within 30 days

- Interest is compounded daily

- Incentives (Airmiles) and Promotions (discounts)

- minimum payment (10 % owe)

- annual fees (lower rate) or no annual fee (higher rate)

- great for tracking your spending/expenses

- other features may include insurances (health)

- must be 18 years old

9.3 Solving Problems Involving Credit

line of credit

A pre-approved loan that offers immediate access to funds, up to a pre-defined limit, with a minimum monthly payment based on accumulated interest; a **secure line of credit** has a lower interest rate because it is guaranteed against the client's assets, usually property.

Bank of Canada prime rate

A value set by Canada's central bank, which other financial institutions use to set their interest rates.

APPLY the Math p. 543

EXAMPLE 1 Solving a credit problem that involves overall cost and number of payments

Meryl and Kyle are buying furniture worth $1075 on credit. They can make monthly payments of $75 and have two credit options. Which option should they choose? Explain.

Option A: The furniture store credit card, which is offering a $100 rebate off the purchase price and an interest rate of 18.7%, compounded daily

Option B: A new bank credit card, which has an interest rate of 15.4%, compounded daily, but no interest for the first year

(A)

```
N=14.65424521
I%=18.7
PV=975
PMT=-75
FV=0
P/Y=12
C/Y=365
PMT:END BEGIN
```

14.65 months

```
75*14.65
                1098.75
Ans-975
                 123.75
```

Pay I

(B) BEST

```
75*12
                    900
```

Reduce owe

```
N=2.384473095
I%=15.4
PV=175
PMT=-75
FV=0
P/Y=12
C/Y=365
PMT:END BEGIN
```

2.38 months

```
75*2.38
                  178.5
Ans-175
                    3.5
```

Pay I

Total Pay 178.50

HOMEWORK...

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

p. 538: #1 - 4 AND p. 552 #1, 2, 3

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