

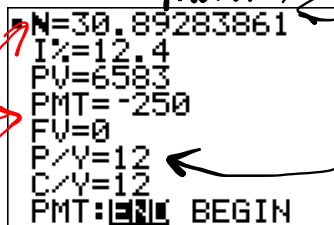
# Grab calculator & finish!

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

N= total # of payments [compounded 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

4. David mows lawns as a part-time job. He needs to buy a new lawn tractor, which will cost \$6583. The bank offers him a loan at 12.4%, compounded monthly, with payments of \$250 at the end of each month.

- a) How long will David need to make payments?
- b) How much interest will he pay?

a) 

$$\frac{30.89}{12} = 2.57 \text{ years}$$

b) Pay  $\Rightarrow 30.89 \times 250 = \$7722.50$

$$I = 7722.50 - 6583$$

$$I = 1139.50$$

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.

← Down 10%

- 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?

a)  $0.10 \times 179900$   
 $\$17990$

b)  $PV = 179900$   
 $- 17990$   


---

 $\$161910$

c)

N=780
I%=4.5
PV=161910
PMT=-284.63044...
FV=0
P/Y=52
C/Y=2
PMT: <input type="checkbox"/> END <input checked="" type="checkbox"/> BEGIN

d) weeks

N=453.9094308
I%=4.5
PV=161910
PMT=-284.63044...
FV=-80955
P/Y=52
C/Y=2
PMT: <input type="checkbox"/> END <input checked="" type="checkbox"/> BEGIN

or 8.7 years

e)

$284.63 \times 780$
222011.4
$222011.4 - 161910$
60101.4

pay Interest

17. 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=453.76688...
FV=0
P/Y=12
C/Y=12
PMT:  END  BEGIN
    
```

**B**

```

N=36
I%=1.8
PV=16000
PMT=456.88560...
FV=0
P/Y=12
C/Y=12
PMT:  END  BEGIN
    
```

*Best*

b)

```

453.77*48
      21780.96
Ans-21000
      780.96
    
```

*Pay Interest*

```

456.89*36
      16448.04
Ans-16000
      448.04
    
```

*Pay Interest.*

# 9.2

## Exploring Credit Card Use

**GOAL** PAGE 536

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.

**Solution is given below...**

<p> <math>N=28.3411992</math>  <math>I\%=14.5</math>  <math>PV=2623.95</math>  <math>PMT=-110</math>  <math>FV=0</math>  <math>P/Y=12</math>  <math>C/Y=365</math>  <math>PMT: [ ] [ ] [ ] BEGIN</math> </p>	<p> <math>N=28.92467766</math>  <math>I\%=19.3</math>  <math>PV=2523.95</math>  <math>PMT=-110</math>  <math>FV=0</math>  <math>P/Y=12</math>  <math>C/Y=365</math>  <math>PMT: [ ] [ ] [ ] BEGIN</math> </p>
<p> <math>28.34 * 110</math>      3117.4  <math>Ans - 2623.95</math>      493.45                 </p>	<p> <math>28.92 * 110</math>      3181.2  <math>Ans - 2523.95</math>      657.25                 </p>

*Best I*      *I*

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

**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.

## **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