

When Corinne got her first job, she opened a savings account at a bank close to where she lives. Corinne's pay is electronically deposited into her account every other Friday. Corinne's bank charges \$5 per month for managing her account. The account fee allows 10 transactions each month. Additional transactions are \$1.25 each. Transactions using her bank card at another institution cost \$1.50. Below is Corinne's first monthly **bank statement**.

Date	Details	Debits (-)	Credits (+)	Balance
Aug 2	Cash deposit	money out	10.00	10.00
Aug 7	Direct deposit		146.73	156.73
Aug 8	ATM withdrawal	20.00	money in	136.73
Aug 8	ATM charge	2.50		134.23
Aug 8	Bank machine fee	1.50		132.73
Aug 8	Cinemas	11.95		120.78
Aug 8	Joe's Subs	7.88		112.90
Aug 12	ATM withdrawal	20.00		92.90
Aug 12	ATM charge	2.50		90.40
Aug 12	Bank machine fee	1.50		88.90
Aug 15	ATM withdrawal	20.00		68.90
Aug 21	Direct deposit		171.06	239.96
Aug 21	ATM withdrawal	40.00		199.96
Aug 21	Just Jeans	67.19		132.77
Aug 22	Cinemas	11.95		120.82
Aug 28	Cell Phone Co.	87.40		33.42
Aug 28	ATM withdrawal	20.00		13.42
Aug 31	Interest		0.01	13.43
Aug 31	Account fee	8.75		4.68

a) What was her opening balance?

10.00

b) What was her closing balance?

4.68

c) How many credits were made to her account?

4

d) How many debits were made to her account?

15

e) Why was her account fee \$8.75?

13 transactions

$5 + 3(1.25)$

$= 8.75$

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Aug 2	Cash deposit		10.00	<u>10.00</u>
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Aug 31	Account fee	8.75		4.68 *

Aug 8	ATM withdrawal	20.00		136.73
Aug 8	ATM charge	2.50		134.23
Aug 8	Bank machine fee	1.50		132.73

How much did this withdrawal cost her?

$$20.00 + 2.50 + 1.50 \\ = 24.00$$

What percentage of this money was paid to the bank?

$$\frac{4}{24.00} = 0.1666 \\ = 0.1666 \times 100 \\ = 16.6\%$$

Loans:

1. A 3-year personal loan of \$5000 at 8% compounded semi-annually results in a monthly payment of \$156.68.
  - a) Determine the total amount to be repaid to the bank.
  - b) How much interest is paid on the loan?
  
2. A 2-year personal loan of \$5000 at 8% compounded semi-annually results in a monthly payment of \$226.14.
  - a) Determine the total to be repaid to the bank.
  - b) How much interest is paid on the loan?
  - c) By choosing a shorter payback period, how much less interest is paid than in #1?

a)  $12 \times 3 = 36$  payments

$36$  ~~months~~  $\times 156.68$   $\frac{\text{payment}}{\text{month}}$

Total Pay: \$5640.48

b)  $5640.48 - 5000$   
 $= \$640.48$

$$\begin{aligned} &\rightarrow 2 \text{ yr} \times 12 \text{ months} \\ &= 24 \text{ payments} \end{aligned}$$

$$\begin{aligned} &226.14 \frac{\text{payment}}{\text{month}} \times 24 \text{ months} \\ &= \$5427.36 \end{aligned}$$

$$\text{b) } 5427.36 - 5000 = \$427.36$$

$$\begin{aligned} \text{c) Over a shorter period} &\rightarrow 640.48 - 427.36 \\ \text{you save } &\underline{\underline{\$213.12}} \end{aligned}$$

3. A local truck dealership is offering a special interest rate of 2.9% for all loans for the purchase of a new vehicle. Simon wants to replace his 4-year-old pickup truck. The total cost of a new truck is about \$33 000. The dealership will give Simon \$10 000 for his old pickup as a trade-in. His payments will be \$412.26 per month for 5 years.

Amount Financed

$$\begin{array}{r} 33000 \\ - 10000 \\ \hline 23000 \end{array}$$

a) Why do you think Simon believes that a 2.9% interest rate is a good deal?

$$\begin{array}{l} 5 \text{ yrs} \times 12 \text{ months} = 60 \text{ pay} \\ 412.26 \text{ pay/month} \times 60 \text{ months} \\ = 24735.60 \end{array}$$

b) How many payments will Simon make before he owns the new truck? 60 payments

c) What is the total amount that he will repay to the dealership?

$$24735.60$$

- d) What is the total amount of interest that Simon will pay?
- e) If Simon's new truck retains 85% of its value each year, approximately what will the truck be worth in 5 years?
- f) The truck that Simon currently owns originally cost about \$28 000. Is \$10 000 a fair price for the truck today if it retained 85% of its value each year?
- g) What would you advise Simon to do?

Depreciation  
 → When something loses value

$$d) \quad 24735.60 - 28000 \\ = 1735.60 \rightarrow \text{interest!}$$

e) Depreciates by 15% each yr.

$$r = -15\% \quad t = 5 \\ = -0.15$$

$$P = 33000$$

$$n = 1$$

$$A = P \left( 1 + \frac{r}{n} \right)^{n \cdot t} \\ A = 33000 \left( 1 + \frac{-0.15}{1} \right)^{1(5)}$$

$$A = 33000 (1 + (-0.15))^5$$

$$A = 33000 (0.85)^5 \\ A = 14642.10$$

You opened up a new account at ScotiaBank and they charge you \$8 for a monthly service fee. This service fee allows you 30 free transactions and charges you an additional \$1.25 for each transaction over the 30<sup>th</sup>. How much do you pay in bank fees if you use:

- a) 28 transactions                      b) 46 transactions

**2. Laura buys a new car for \$21 000. Her payments are \$493.19 per month for 4 years.**

- a) How many payments will Laura make?**
- b) What is the total amount that she will repay to her bank?**
- c) How much interest will she pay?**
- d) If Laura's car retains 80% of its value each year, approximately what will her car be worth in 4 years?**

**3. Trevor is buying a new SUV for \$63 000. After trading in his current vehicle, he needs to borrow \$46 000. His payments are \$889.31 per month for 5 years.**

- a) How many payments will he make before he owns the SUV?**
- b) What is the total amount that he will repay to the bank?**
- c) If Trevor's SUV retains 80% of its value each year, approximately what will his vehicle be worth when he has made the last payment?**



4) Ben's moped broke down, so he decides to take out another loan, this time \$2500. The banker offers him the following options. For each option, calculate the value of the loan after 3 years.

a) 8% interest, compounded semi-annually

b) 6.5% interest, compounded monthly

Which option should Ben take if he wants to pay the least possible amount?



**Jeff borrows \$3500 to renovate his basement into an apartment. He agrees to a 3-year payback schedule with monthly payments of \$108.07.**

**a) How much will Jeff repay to the bank?**

**b) How much interest will he pay?**