

## 4-2 LOANS OBJECTIVES

- Read **monthly payments from a table.**
- Compute **monthly payments using a formula.**
- Compute **finance charges on loans.**

Slide 1

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

## Key Terms

- **prepayment penalty** - This agreement requires borrowers to pay a fee if they wish to pay back an entire loan before the due date.
- **wage assignment** - This is a voluntary deduction from an employee's paycheck, used to pay off debts.
- **wage garnishment** - This is an involuntary form of wage assignment, often enforced by court order. The employer deducts money from the employee's paycheck to pay the creditor.
- **balloon payment** - The last monthly payment on some loans that is much higher than the previous payments.
- **lending institution** - Organizations that extend loans.

Slide 3

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

## Key Terms

- **promissory note** - An agreement you sign which states the conditions of the loan whenever you borrow money. Your signature is your promise to pay back the loan as outlined in the agreement.
- **principal** - The amount you borrow.
- **annual percentage rate** - The interest rate (APR).
- **cosigner** - This person agrees to pay back the loan if the borrower is unable to do so. People without an established credit rating often need a cosigner.
- **prepayment privilege** - This feature allows the borrower to make payments before the due date to reduce the amount of interest.

Slide 2

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

## Lending Institutions

- **Banks** Most consumers apply for loans at banks. *Savings banks* offer good interest rates but require loan applicants to have good credit ratings. *Commercial banks* are banks used by businesses, so they have large amounts of money to lend. They also require a good credit rating.
- **Credit Unions** A credit union provides financial services for its members only. Members may work in the same office, be in the same profession, or live in the same apartment complex. Members deposit money in a credit union account. This money is made available to members who apply for loans from the credit union, usually at an interest rate that is lower than a bank can offer.
- **Consumer Finance Companies** These businesses primarily lend money to people with poor credit ratings, who cannot get a loan anywhere else. High interest are charged rates for this service.

Slide 4

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

## Lending Institutions

- Life Insurance Companies** Life insurance companies make loans to their policyholders. The amount that can be borrowed is based on the amount of life insurance purchased and the length of time the policy has been held. The interest rate is good because the life insurance company is not taking a tremendous risk because if the loan is not paid back, it can be deducted from the life insurance benefit when it is paid.
- Pawnshops** Pawnshops are known for small, quick loans. A customer who needs money leaves a personal belonging, called collateral, with the pawn broker in exchange for the loan. Most loans are 30-, 60-, or 90-day loans. When the debtor returns with the principal plus interest, the collateral is returned.

Slide 5

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

## Table of monthly payments per \$1,000 of principal

Rate	1 yr	2 yr	3 yr	4 yr	5 yr	6 yr	Rate	1 yr	2 yr	3 yr	4 yr	5 yr	6 yr
6.00%	86.50	44.55	30.62	23.71	19.67	16.36	6.00%	81.95	46.74	32.27	25.36	21.25	18.22
6.25%	86.47	44.68	30.76	23.85	19.80	16.48	6.25%	82.02	46.85	32.39	25.46	21.37	18.35
6.50%	86.43	44.79	30.89	23.98	19.92	16.61	6.50%	82.10	46.96	32.50	25.56	21.49	18.48
6.75%	86.44	44.89	31.00	24.10	20.04	16.74	6.75%	82.17	47.07	32.61	25.67	21.61	18.61
7.00%	86.70	45.00	31.11	24.21	20.16	16.87	7.00%	82.24	47.18	32.71	25.77	21.74	18.74
7.25%	86.67	45.11	31.22	24.32	20.28	17.00	7.25%	82.31	47.29	32.82	25.87	21.87	18.87
7.50%	86.59	45.23	31.34	24.43	20.39	17.13	7.50%	82.38	47.40	32.93	25.97	21.99	19.00
7.75%	87.10	45.34	31.45	24.54	20.51	17.27	7.75%	82.45	47.51	33.03	26.07	22.12	19.13
8.00%	87.22	45.46	31.57	24.65	20.62	17.40	8.00%	82.52	47.62	33.13	26.17	22.24	19.26
8.25%	87.54	45.57	31.68	24.77	20.74	17.53	8.25%	82.59	47.73	33.24	26.27	22.37	19.39
8.50%	87.45	45.68	31.80	24.88	20.86	17.67	8.50%	82.66	47.84	33.34	26.37	22.50	19.52
8.75%	87.57	45.80	31.91	24.99	20.98	17.80	8.75%	82.73	47.95	33.45	26.47	22.62	19.65
9.00%	87.68	45.91	32.02	25.11	21.10	17.94	9.00%	82.80	48.06	33.55	26.57	22.75	19.78
9.25%	87.65	46.03	32.13	25.22	21.22	18.07	9.25%	82.87	48.17	33.66	26.67	22.88	19.91

Slide 7

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

## What information do you need to know before taking out a loan?

- Why is it important to read the fine print in a promissory note?
- How does it affect a bank when a loan is paid off early?

Slide 6

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

## Example 1

What is the monthly payment for a \$4,000 two-year loan with an APR of 8.50%?

Slide 8

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### OYO

Juan is borrowing \$41,000 for 5 years at an APR of 6.5%. What is the monthly payment?

Slide 9

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### CHECK YOUR UNDERSTANDING

The total of monthly payments for a 5-year loan is \$7,171.20. The APR is 7.25%. How much money was originally borrowed?

Slide 11

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Example 2

What is the total amount of the monthly payments for a \$4,000, two-year loan with an APR of 8.50%?

Slide 10

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### EXAMPLE 3

Find the finance charge for a \$4,000, two-year loan with an 8.5% APR?

Slide 12

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.



## 4.2

Table of Monthly Payments per \$1,000 of Principal

Rate	1 yr	2 yr	3 yr	4 yr	5 yr	10 yr
6.50%	86.30	44.55	30.65	23.71	19.57	11.35
6.75%	86.41	44.66	30.76	23.83	19.68	11.48
7.00%	86.53	44.77	30.88	23.95	19.80	11.61
7.25%	86.64	44.89	30.99	24.06	19.92	11.74
7.50%	86.76	45.00	31.11	24.18	20.04	11.87
7.75%	86.87	45.11	31.22	24.30	20.16	12.00
8.00%	86.99	45.23	31.34	24.41	20.28	12.13
8.25%	87.10	45.34	31.45	24.53	20.40	12.27
8.50%	87.22	45.46	31.57	24.65	20.52	12.40
8.75%	87.34	45.57	31.68	24.77	20.64	12.53
9.00%	87.45	45.68	31.80	24.89	20.76	12.67

1. Refer to the table above to find the monthly payments necessary to complete parts a - e.
  - a. What is the monthly payment for a \$3,200 five-year loan with an APR of 9%?
  - b. Mia borrows \$66,000 for four years at an APR of 7.25%. What is the monthly payment?
  - c. What is the total amount of the monthly payments for a \$6,100, two-year loan with an APR of 8.75%? Round to the nearest dollar.
  - d. The total of monthly payments for a 3-year loan is \$19,668.60. The APR is 7.75%. How much money was originally borrowed?
  - e. What is the finance charge for a \$7,000, two-year loan with a 6.75% APR?
  
2. The Star Pawnshop will lend up to 45% of the value of a borrower's collateral. Ryan wants to use \$4,000 worth of jewelry as collateral for a loan. What is the maximum amount that he could borrow from Star?

3. Liz found an error in the monthly payment her bank charged her for a four-year, \$19,500 loan. She took the loan out at an APR of 9%. Her bank was charging her \$495.26 per month.
  - a. What is the correct monthly payment?
  
  
  
  
  
  
  
  
  
  
  - b. Liz noticed the error just before making the last payment. The bank told her that they would credit all of the overpayments and adjust her last month's payment accordingly. What should her last month's payment be after the adjustment? Explain.
  
  
  
  
  
  
  
  
  
  
4. Cecilia bought a new car. The total amount she needs to borrow is \$29,541. She plans to take out a 4-year loan at an APR of 6.3%. What is the monthly payment?
  
  
  
  
  
  
  
  
  
  
5. Claire needs to borrow \$12,000. She compares the monthly payments for an 8.1% loan for three different periods time. What is the monthly payment for a one-year loan? a two-year loan? a five-year loan?

## 4-3 LOAN CALCULATIONS AND REGRESSION

### OBJECTIVES

Calculate the present value of a single deposit investment.

Calculate the present value of a periodic deposit investment.

Slide 1

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

Loan Amount	Interest Rate	Term	Start Date
\$ 100,000	7.5 %	15 years	Jan 2010

Payments & Interest	
Your Monthly Payment	\$ 927.61
Total Interest Paid (life of loan)	\$ 66,862.22

Payment Schedule for 2010			
Month	Principal Paid	Interest Paid	Loan Balance
Jan 2010	\$ 302.81	\$ 625.00	\$ 99,697.00
Feb 2010	\$ 303.90	\$ 623.11	\$ 99,394.09
Mar 2010	\$ 305.89	\$ 621.21	\$ 99,088.29
Apr 2010	\$ 307.71	\$ 619.30	\$ 98,779.58
May 2010	\$ 309.84	\$ 617.38	\$ 98,470.94
Jun 2010	\$ 311.57	\$ 615.44	\$ 98,159.38
Jul 2010	\$ 313.02	\$ 613.50	\$ 97,845.96
Aug 2010	\$ 315.48	\$ 611.54	\$ 97,530.38
Sep 2010	\$ 317.45	\$ 609.56	\$ 97,212.94
Oct 2010	\$ 319.43	\$ 607.58	\$ 96,893.59
Nov 2010	\$ 321.43	\$ 605.59	\$ 96,572.03
Dec 2010	\$ 323.44	\$ 603.58	\$ 96,248.64

Slide 3

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### How can you calculate and model loan computations?

- How does a loan payment work?
- Which of the following change monthly and which remain the same each month?
  - Monthly payments
  - Monthly contribution to principal
  - Monthly contribution to finance charges

Slide 2

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Key Terms

- monthly payment calculator - give you a summary of the loan balance over the lifetime of the loan and on a monthly or yearly basis.

Slide 4

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.



### Example 1

Determine the total interest owed on a 5-year \$10,000 loan at 6% APR.

Slide 5

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Loan Length Formula

$$t = \frac{\ln\left(\frac{M}{p}\right) - \ln\left(\frac{M}{p} - \frac{r}{12}\right)}{12 \ln\left(1 + \frac{r}{12}\right)}$$

where  $M$  = monthly payment  
 $p$  = principal  
 $r$  = interest rate  
 $t$  = number of years

Slide 7

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### OYO

Hannah is taking out a 4.3% loan to purchase an \$18,000 car. The length of the loan is 8 years. How much will she pay in interest?

Slide 6

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Example 2

Jennifer wants to borrow \$20,000. Her bank offers a 7.1% interest rate. She can afford \$500 a month for loan payments. What should be the length of her loan to the nearest tenth of a year?

Slide 8

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.



### Example 3

Claude wants to borrow \$25,000 to purchase a car. After looking at his monthly budget, he realizes that all he can afford to pay per month is \$300. The bank is offering a 5.9% loan. What would need to be the length of his loan be so that he can stay within his budget?

Slide 9

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### OYO

In Example 3, what impact would an increase in the monthly payment of \$50 have on the length of the loan?

Slide 10

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### 4.3

Use the table to answer questions 1-4.

Year	Principal Paid	Interest Paid	Loan Balance	Year	Principal Paid	Interest Paid	Loan Balance
							\$76,000.00
2011	\$3,702.31	\$3,158.45	\$72,297.69	2019	\$5,198.46	\$1,662.30	\$36,279.09
2012	\$3,862.78	\$2,997.98	\$68,434.91	2020	\$5,423.74	\$1,437.02	\$30,855.35
2013	\$4,030.18	\$2,830.58	\$64,404.73	2021	\$5,658.80	\$1,201.96	\$25,196.55
2014	\$4,204.85	\$2,655.91	\$60,199.88	2022	\$5,904.04	\$956.72	\$19,292.51
2015	\$4,387.07	\$2,473.69	\$55,812.81	2023	\$6,159.90	\$700.86	\$13,132.61
2016	\$4,577.18	\$2,283.58	\$51,235.63	2024	\$6,426.88	\$433.88	\$6,705.73
2017	\$4,775.56	\$2,085.20	\$46,460.07	2025	\$6,705.73	\$157.40	\$0.00
2018	\$4,982.52	\$1,878.24	\$41,477.55				

1. What is the loan amount?
2. What is the length of the loan?
3. What is the monthly payment?
4. What is the total interest over the loan's life?
5. What is the monthly payment for a 10-year, \$20,000 loan at 4.625% APR? What is the total interest paid on this loan?
6. Merissa wants to borrow \$12,000 to purchase a used boat. After looking at her monthly budget, she realizes that all she can afford to pay per month is \$250. The bank is offering a 6.1% loan. What should the length of her loan be so that she can keep within her budget? Round to the nearest year.
7. Neville is considering taking out a \$9,000 loan. He went to two lending institutions. Sunset Park Company offered him a 10-year loan with an interest rate of 5.2%. Carroll Gardens Bank offered him an 8-year loan with an interest rate of 6.6%. Which loan will have the lowest interest over its lifetime?

## 4-4 CREDIT CARDS

### OBJECTIVES

- Become familiar with the basic vocabulary of credit cards.
- Compute an average daily balance.

Slide 1

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Key Terms

- **debit card** – Not a credit or charge card, because there is no creditor extending credit. If you open a debit account, you deposit money into your account, and this card acts like an electronic check. You are deducting money directly from your account each time you make a purchase using the debit card.
- **average daily balance** – The average of the amounts you owed each day of the billing period. It changes due to purchases made and payments made.
- **Truth-in-Lending Act** – Protects you if your card is lost or stolen. If this happens, notify the creditor who issued the card immediately. You may be partially responsible for charges made by unauthorized users of cards you lose. The maximum liability is \$50. You are not responsible for any charges that occur after you notify the creditor.

Slide 3

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Key Terms

- **credit card** – A plastic card that entitles its holder to make purchases and pay for them later.
- **impulse buying** – When a consumer purchases something to which they suddenly were attracted to and had no intention of buying.
- **revolving charge account** – The most commonly used credit card account where the entire bill does not have to be paid in full each month. There is a minimum monthly payment, and there is a finance charge the month following any month the bill is not paid in full.
- **charge card** – A special type of credit card. It allows the cardholder to make purchases in places that accept the card. The monthly bill for all purchases must be paid in full.

Slide 2

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Key Terms

- **Fair Credit Billing Act** - protects you if there are any errors in your monthly statement. It is your responsibility to notify the creditor about the error. You do not have to pay the amount that is disputed or any finance charge based on that amount, until the problem is cleared up.
- **Fair Debt Collection Practices Act** - prohibits the creditor from harassing you or using unfair means to collect the amount owed.
- **Electronic Funds Transfer Act** - protects debit card users against unauthorized use of their cards. They are not responsible for purchases made with a lost or stolen card after the card is reported missing.

Slide 4

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Advantages of credit cards used ***RESPONSIBLY***

- There is no need to carry large sums of cash.
- Helps a credit rating (FICO score).
- Customers receive or have access to a written record of all purchases.
- Some cards have rewards programs such as frequent flyer miles.

Slide 5

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Example 2

Credit card companies issue a monthly statement, therefore APR (annual percentage rate) must be converted to a monthly percentage rate. If the APR is 21.6%, what is the monthly interest rate?

Slide 7

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Example 1

Frank lost his credit card in a local mall. He notified his creditor before the card was used. However, later in the day, someone found the card and charged \$700 worth of hockey equipment on it. How much is Frank responsible for paying?

Slide 6

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### EXAMPLE 3

Rebecca did not pay last month's credit card bill in full. Below is a list of Rebecca's daily balances for her last billing cycle.

For seven days she owed \$456.11.

For three days she owed \$1,177.60.

For six days she owed \$990.08.

For nine days she owed \$2,115.15.

For five days she owed \$2,309.13.

Find Rebecca's average daily balance.

Slide 8

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

#### EXAMPLE 4

Rebecca (from Example 3) pays a finance charge on her average daily balance of \$1,441.60. Her APR is 18%. What is her finance charge for this billing cycle?

Slide 9

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

#### OYO

Vincent had these daily balances on his credit card for his last billing period. He did not pay the card in full the previous month, so he will have to pay a finance charge. The APR is 19.2%.

nine days @ \$778.12

eight days @ \$1,876.00

four days @ \$2,112.50

ten days @ \$1,544.31

- What is the average daily balance?
- What is the finance charge?

Slide 10

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### OYO

Juliana is taking out an \$8,700, 3.5-year loan with an APR of 9.31%. What will be the monthly payment for this loan?

Slide 16

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Example 3

Solomon is taking out a \$15,320, two-year loan with an APR of 10.29%. What will be the finance charge for this loan to the nearest dollar?

Slide 17

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

#### 4.4

1. If the APR on a credit card is 22.2%, what is the monthly interest rate?
  
2. The average daily balance for Dave's last credit card statement was \$1,213.44, and he had to pay a finance charge. The APR is 20.4%. What is the monthly interest rate? What is the finance charge for the month?
  
3. Mrs. Fagin's daily balances for the past billing period are given below.  
For five days she owed \$233.49. For three days she owed \$651.11.  
For nine days she owed \$991.08. For seven days she owed \$770.00.  
For seven days she owed \$778.25.

Find Mrs. Fagin's average daily balance.

4. Mrs. Cykman's credit card was stolen, and she did not realize it for several days. The thief charged a \$440 watch while using it. According to the Truth-in-Lending Act, at most how much of this is Mrs. Cykman responsible for paying?
  
  
  
  
  
  
  
  
  
  
5. Brett and Andy applied for the same credit card from the same bank. The bank checked both of their FICO scores. Brett had an excellent credit rating, and Andy had a poor credit rating.
  - a. Brett was given a card with an APR of 12.6%. What was his monthly percentage rate?
  
  
  
  
  
  
  
  
  
  
  - b. Andy was given a card with an APR of 16.2%. What was his monthly percentage rate?
  
  
  
  
  
  
  
  
  
  
  - c. If each of them had an average daily balance of \$7,980, and had to pay a finance charge, how much more would Andy pay than Brett?





## 4-5 CREDIT CARD STATEMENT

### OBJECTIVES

To identify and use the various entries in a credit card statement.

Slide 1

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Key Terms

- **previous balance** - Any money owed before current billing period.
- **payments/credits** - Total amount received by the creditor.
- **new purchases** - The sum of purchases (debits) on the current bill.
- **late charge** - The penalty for late payments from a previous month.
- **finance charge** - The cost of using the credit card for the current billing period.
- **new balance** - The amount you currently owe.
- **minimum payment** - This amount is the lowest payment the credit card company will accept for the current billing period.
- **average daily balance** - The average amount owed per day during the billing cycle.
- **number of days in billing cycle** - The amount of time, in days, covered by the current bill.
- **monthly periodic rate** - The APR divided by 12.

Slide 3

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Key Terms

- **billing cycle** - A predetermined amount of time set by the credit card company that is used for calculating your credit card bill.
- **credit card statement** - An accounting of your credits and debits at the end of every cycle sent to you by the credit card company.
- **account number** - Each credit card account has a unique number.
- **credit line** - The maximum amount you can owe at any time without penalty.
- **available credit** - The difference between the maximum amount you can owe and the actual amount you owe.
- **billing date** - The date the bill (statement) was written.
- **payment due date** - On this date the monthly payment must be received by the creditor.
- **transactions** - A list of purchases made and the date.
- **debit/credit** - A debit is the amount charged to your account. A credit is a payment made to reduce your debt. Credits are identified by a negative (-) sign.

Slide 2

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

- How might a credit card company benefit from a shorter billing cycle for a college student who has yet to establish a credit track record?
- Describe the types of errors a credit card user might find on his or her monthly credit card statement.
- How can you establish credit responsibly?

Slide 4

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

## What information does a credit card statement give you?

ACCOUNT INFORMATION		Account Number	Billing Date	Payment Due			
Jane Sharp		2053 6967 6098	23 Jan	2 Feb			
25 Main Street Sunrise, NY							
TRANSACTIONS							
				DEBITS / CREDITS (+/-)			
2 Jan	Caesars V. GR Shop			\$75.00			
3 Jan	Suzza's Pizzeria			\$18.5			
5 Jan	Bookman Department Store			\$139.10			
10 Jan	Festival Book Store			\$38.50			
21 Jan	Payment			-\$75.00			
SUMMARY							
Previous Balance	Payments / Credits	New Purchases	Late Charge	Finance Charge	New Balance	Minimum Payment	
\$150.50	\$75.00	\$284.45	\$0.00	\$3.53	\$363.48	\$20.00	
Total Credit Line		\$1800.00	Average Daily Balance		# Days in Billing Cycle	APR	Monthly Payment Rate
Total Available Credit		\$749.52	\$235.10		30	13%	1.5%

Slide 5

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

## CHECK YOUR UNDERSTANDING

Suppose you create the following spreadsheet that models the statement summary and input the values in row 2. Write the spreadsheet formula to compute the new balance in cell F2.

	A	B	C	D	E	F
1	Previous Balance	Payments	New Purchases	Late Charge	Finance Charge	New Balance
2						

Slide 7

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

## Example 1

SUMMARY	Previous Balance	Payments / Credits	New Purchases	Late Charge	Finance Charge	New Balance	Minimum Payment
	\$150.50	\$75.00	\$284.45	\$0.00	\$3.53	\$363.48	\$20.00

The summary portion of Jane Sharp's credit card statement shown is above.

- Explain how the new purchases amount was determined.
- Explain how the new balance amount was determined.

Slide 6

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

## Example 2

Paul has a credit line of \$15,000 on his credit card. His summary looks as follows. How much available credit does Paul have?

SUMMARY	Previous Balance	Payments / Credits	New Purchases	Late Charge	Finance Charge
	\$4,598.12	\$4,000.00	\$1,368.55	\$20.00	\$5.78

Slide 8

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### Example 3

Myrna is examining the summary section of her credit card statement. Myrna has checked all the entries on her bill and agrees with everything except the new balance. Determine where the error was made.

SUMMARY	Previous Balance	Payments / Credits	New Purchases	Late Charge	Finance Charge	New Balance
	\$1,748.00	\$100.00	\$800.00	\$9.15	\$19.00	\$2,576.15

### On your own

Determine the error that was made using the following summary statement

SUMMARY	Previous Balance	Payments / Credits	New Purchases
	\$850.00	\$560.00	\$300.00
	Late Charge	Finance Charge	New Balance
	\$3.00	\$4.78	\$504.78



# 4-5 Credit Card Statement

## Exercises

1. The summary portion of Manny Ramira's credit card statement is shown. Determine the New Balance amount.

SUMMARY	Previous Balance	Payments / Credits	Transactions	Late Charge	Finance Charge	New Balance	Minimum Payment
	1,237.56	\$1,200.00	\$2,560.67	\$0.00	\$9.56		

2. Lizzy has a credit line of \$9,000 on her credit card. Her summary is shown. What is her available credit balance?

SUMMARY	Previous Balance	Payments / Credits	Transactions	Late Charge	Finance Charge	New Balance	Minimum Payment
	\$6,500.56	\$5,200.00	\$978.45	\$20.00	\$12.88		

3. Rich had a previous balance of  $x$  dollars and made an on-time credit card payment of  $y$  dollars where  $y < x$ . He has a credit line of 10,000 dollars and pays an APR of 15.4%. Rich made purchases totaling \$1,300.30. Write an algebraic expression that represents his current available credit.

4. Determine the error that was made using the following summary statement.

SUMMARY	Previous Balance	Payments / Credits	Transactions	Late Charge	Finance Charge	New Balance	Minimum Payment
	\$350.90	\$200.00	\$200.00	\$0.00	\$8.68	\$759.58	

5. Marianne has a credit card with a line of credit at \$15,000. She made the following purchases: \$1,374.90, \$266.21, 39.46, and \$903.01. What is Marianne's available credit?

6. Luke has a credit line of \$8,500 on his credit card. He had a previous balance of \$4,236.87 and made a \$3,200.00 payment. The total of his purchases is \$989.42. What is Luke's available credit?

7. The APR on Ramona's credit card is currently 24.6%. What is the monthly periodic rate?

8. Sheila's monthly periodic rate is 2.41%. What is her APR?

9. Examine the summary section of a monthly credit card statement. Calculate the new balance.

SUMMARY	Previous Balance	Payments / Credits	Transactions	Late Charge	Finance Charge	New Balance	Minimum Payment
	\$876.34	\$800.00	\$1,009.56	\$30.00	\$29.67		\$18.00

10. Jack set up a spreadsheet to model his credit card statement. The summary statement portion of the spreadsheet is shown. Write the formula for available credit that would be entered in cell J32.

	D	E	F	G	H	I	J
31	Previous Balance	Payments	New Purchases	Late Charge	Finance Charges	Credit Line	Available Credit
32							

11. Use the credit card statement to answer the questions below.

Liam DeWitt				6915 Maple Creek Dr. West Chester, OH			
ACCOUNT INFORMATION							
Account Number		4-10700000		Billing Date		13 Sept	
				Payment Due		30 Sept	
TRANSACTIONS							DEBITS / CREDITS (-)
22 Aug	Propane Home Heat					\$250.50	
23 Aug	TJ Marsha's Department Store					\$87.60	
25 Aug	Brighton University					\$1,300.00	
1 Sept	Middle Island Auto Parts					\$470.63	
2 Sept	Payment					-\$2,000.00	
3 Sept	Al's Mobal Gas Station					\$34.76	
5 Sept	Stop, Shop and Go					\$102.71	
10 Sept	Federal Express					\$45.90	
12 Sept	Computer Depot					\$848.60	
SUMMARY	Previous Balance	Payments / Credits	Transactions	Late Charge	Finance Charge	New Balance	Minimum Payment
	\$3,240.50			\$0.00			\$30.00
Total Credit Line		\$ 5,000.00		Average Daily Balance	# Days in Billing Cycle	APR	Monthly Periodic Rate
Total Available Credit		\$ 5,000.00					
Credit Line for Cash		\$ 4,000.00					
Available Credit for Cash		\$ 4,000.00			30	19.8%	

- How many purchases (debits) were made during the billing cycle?
- What is the sum of all purchases (debits) made during the billing cycle?
- When is the payment for this statement due?
- What is the minimum amount that can be paid?
- How many days are in the billing cycle?
- What is the previous balance?



4-6

# AVERAGE DAILY BALANCE

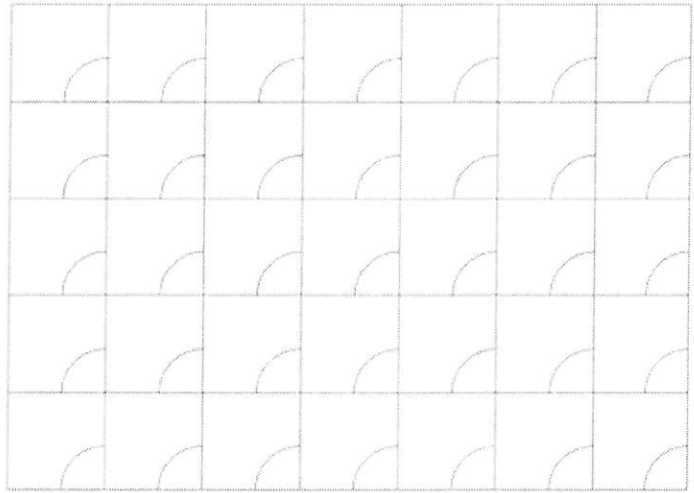
## OBJECTIVES

- Calculate the average daily balance using the credit calendar.
- Calculate the finance charge using the credit calendar.

The best way to deal with credit card debt is to educate yourself.  
Barb Rosen, Author

Slide 1

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.



### Example 1

Use the information given in Elena Kaye's credit card statement to verify the accuracy of her average daily balance.

ACCOUNT INFORMATION		Billing Date		Payment Due		Due	
Account Number	7-3456-1234	Billing Date	11 Nov	Payment Due	15 Dec	Due	
TRANSACTIONS				DEBITS / CREDITS (+/-)			
25 Oct	Household					\$67.00	
29 Oct	Booker Wrap Shipping Co.					\$55.00	
5 Nov	Payment					-\$100.00	
SUMMARY							
Previous Balance	\$326.35	Payments / Credits	\$165.00	New Purchases	\$122.00	Less Charge	\$0.00
		Finance Charge	\$12.09	New Balance	\$403.39	Minimum Payment	\$55.00
Min. Cash Limit	\$3,000.00	Annual % Rate	12.99%	APR	15.99%	Monthly Finance Rate	1.33%
Min. Available Limit	\$2,000.00	Annual % Rate	12.99%	APR	15.99%	Monthly Finance Rate	1.33%

Slide 2

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

### CHECK YOUR UNDERSTANDING

Is there a better time during the billing cycle when Elena could have made her payment so that the average daily balance would have been less?

Slide 3

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

**Example 2**

Determine the finance charge for Elena's billing cycle.

Slide 4

Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

**CHECK YOUR UNDERSTANDING**

When might Elena have made her purchases during the billing cycle in order to decrease her finance charge?

Slide 5

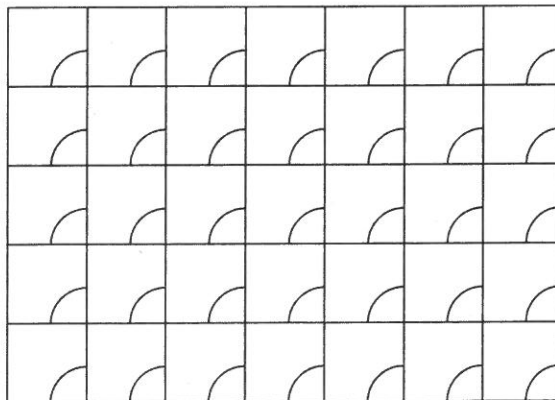
Financial Algebra  
© 2011 Cengage Learning. All Rights Reserved.

# 4-6 Average Daily Balance

## Exercises

Use Liam DeWitt's FlashCard statement and the blank credit calendar for Exercises 1 – 4.

Liam DeWitt				6915 Maple Creek Dr. West Chester, OH			
ACCOUNT INFORMATION							
Account Number		4-10700000		Billing Date		13 Sept	
				Payment Due		30 Sept	
TRANSACTIONS							DEBITS / CREDITS (-)
22 Aug	Propane Home Heat						\$250.50
23 Aug	TJ Marsha's Department Store						\$87.60
25 Aug	Brighton University						\$1,300.00
1 Sept	Middle Island Auto Parts						\$470.63
2 Sept	Payment						-\$2,000.00
3 Sept	Al's Mobal Gas Station						\$34.76
5 Sept	Stop, Shop and Go						\$102.71
10 Sept	Federal Express						\$45.90
12 Sept	Computer Depot						\$848.60
SUMMARY	Previous Balance	Payments / Credits	Transactions	Late Charge	Finance Charge	New Balance	Minimum Payment
	\$3,240.50			\$0.00			\$30.00
Total Credit Line		\$ 5,000.00		Average Daily Balance	# Days in Billing Cycle	APR	Monthly Periodic Rate
Total Available Credit		\$ 5,000.00					
Credit Line for Cash		\$ 4,000.00					
Available Credit for Cash		\$ 4,000.00			30	19.8%	



1. What is Liam's average daily balance?
2. What is Liam's monthly periodic rate?
3. What is Liam's finance charge?
4. What is Liam's new balance?
5. What is Liam's available credit?

