

Applications

TEACH

Exercises 2–4

It is important that students understand the effect that a partial payment has on the following month's bill. Address this before assigning these exercises.

Exercise 5

Since a complete payment was made the prior month, it is not necessary to make any calculations. There will be no finance charge.

Exercise 6

Extend this exercise by having students develop a credit card statement that contains one or more errors. Once completed, they can switch with a partner and find the errors.

ANSWERS

- The quote is a warning about loans and debts. Entering into any debt agreement should be done cautiously and wisely.

The best way to deal with credit card debt is to educate yourself.

—Mark Rosen, author

- How might the quote apply to what you have learned? *See margin.*
- Ralph just received his June FlashCard bill. He did not pay his May bill in full, so his June bill shows a previous balance and a finance charge. The average daily balance is \$470, and the monthly periodic rate is 1.5%. What should Ralph's finance charge be? **\$7.05**
- Lauren did not pay her January FlashCard bill in full, so her February bill has a finance charge added on. The average daily balance is \$510.44, and the monthly periodic rate is 1.3%. What should Lauren's finance charge be on her February statement? **\$6.64**
- Jennifer did not pay her FlashCard bill in full in September. Her October bill showed a finance charge, and she wants to see whether or not it is correct. The average daily balance is \$970.50, and the APR is 15.6%. Find the finance charge for her October statement. **\$12.62**
- Daniyar paid his April FlashCard bill in full. His May bill shows an average daily balance of \$270.31 and a monthly periodic rate of 1.65%. What is the finance charge on Daniyar's May statement? **\$0**
- Use Mark Gilley's FlashCard statement. The average daily balance, finance charge, available credit, and new balance amounts are not filled in. You can find a copy of the blank credit calendar at www.cengage.com/financial_alg2e.

ACCOUNT INFORMATION							
Account Number		7-6231-491		Billing Date		26 Jun	
						Payment Due	10 Jul
TRANSACTIONS							
						DEBITS / CREDITS (-)	
31 May	63214987261	Linda's Art Shop					
12 Jun	62115497621	Artisign's Inc.				\$251.00	
18 Jun	73216532116	Payment Thank you				\$72.50	
20 Jun	73162225142	Sylvart Corp.				-\$200.00	
						\$18.50	
SUMMARY	Previous Balance	Payments / Credits	New Purchases	Late Charge	Finance Charge	New Balance	Minimum Payment
	\$800.00	-\$200.00	\$342.00	\$0.00			\$25.00
Total Credit Line		\$ 6,000.00		Average Daily Balance	# Days in Billing Cycle	APR	Monthly Periodic Rate
Total Available Credit					31	18%	1.5%

- What is Mark's average daily balance? **\$999.81**
- What is Mark's finance charge? **\$15.00**
- What is Mark's new balance? **\$957.00**
- What is Mark's available credit? **\$5,043.00**
- If the \$200 payment had been posted on 6/13, would Mark's finance charge for this billing cycle have been higher or lower? **Lower; the ADB would have been lower, so the finance charge would be lower as well.**

7. After Wade paid his May credit card bill, he still had a balance of z dollars. He made no additional payments or purchases before he received his next bill. The monthly periodic rate on this account is 2.015%. What expression represents the finance charge on his June statement? $0.02015z$
8. Ed Lubbock's FlashCard statement is below. There are entries missing.

Ed Lubbock				1234 Algebra Street Euclid, WA					
ACCOUNT INFORMATION									
Account Number		7-6234712		Billing Date		10 Dec			
Payment Due				21 Dec					
TRANSACTIONS						DEBITS / CREDITS (-)			
24 NOV	632174293	Rusty's Rib Palace				\$48.00			
1 DEC	321446253	Payment				-\$100.00			
6 DEC	333261114	Petrela Sailboats				\$30.00			
SUMMARY		Previous Balance	Payments / Credits	New Purchases	Late Charge	Finance Charge	New Balance	Minimum Payment	
		\$421.50	-\$100.00	\$78.00				\$30.00	
Total Credit Line				\$ 1,000.00		Average Daily Balance	# Days in Billing Cycle	APR	Monthly Periodic Rate
Total Available Credit							30	19.8%	1.65%

- a. What is Ed's average daily balance? $\$420.37$
- b. What is Ed's finance charge? $\$6.94$
- c. What is Ed's new balance? $\$406.44$
- d. What is Ed's available credit? $\$593.56$
- e. If the \$30 charge to Petrela Sailboats had been posted on 12/9, would the finance charge be higher or lower for this billing cycle? Explain. **Lower; ADB is lower**
9. Examine the following 21-day credit calendar. The opening balance is Y dollars. On March 23, a purchase of X dollars was made. On March 28, a payment of Z dollars was made. On April 4, a purchase of W dollars was made.

MARCH						
Y	Y	Y	Y	Y	Y	Y
16	17	18	19	20	21	22
$Y + X$					$-Z$	
23	24	25	26	27	28	29
		APRIL			$+W$	
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19

ANSWERS

9d. $7Y + 5(Y + X) + 7(Y + X - Z) + 2(Y + X - Z + W)$
 9e. $\frac{(7Y + 5(Y + X) + 7(Y + X - Z) + 2(Y + X - Z + W))}{21}$

- a. What is the algebraic expression for the daily balance on March 23? Write it in on that date and on March 24–27. $Y + X$
- b. What is the algebraic expression for the daily balance on March 28 after the payment is made? Write it on that date and on March 29 to April 3. $Y + X - Z$
- c. What is the algebraic expression that represents the daily balance on April 4 after the purchase is made? Write it on that date and on April 5. $Y + X - Z + W$
- d. Write the algebraic expression for the sum of the daily balances. **See margin.**
- e. What is the algebraic expression for the average daily balance? **See margin.**

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Exercise 8

This exercise requires students to construct and use a credit calendar. Make sure that they understand the need to alter the calendar depending on the number of days in the cycle. They also need to "date backward," starting from the billing date listed in the statement. A reminder as to the number of days in a given month may be needed.

Exercise 9

This exercise extends the concepts learned in this lesson so that students can model the credit calendar process algebraically. Do not assign this problem until you are sure that students correctly answered Exercise 8. They should be encouraged to model the solution to this problem after the one in Exercise 8.

Extra
3-15
ed
ame
e
6 23
9-20

ANSWERS

- 10a. \$46.43
- 10b. \$3,226.43
- 10c. \$40
- 10d. \$3,186.43
- 10e. \$46.52
- 10f. \$3,232.95
- 10g. \$40
- 10h. \$3,192.95
- 10i. \$46.62
- 10j. \$3,239.57
- 10k. \$40
- 10l. \$3,199.57
- 10m. \$46.71
- 10n. \$3,246.28
- 10o. 40

No, the balance is increasing.

- 11a. \$11.52
- 11b. \$971.52
- 11c. \$20
- 11d. \$951.52
- 11e. \$11.42
- 11f. \$962.94
- 11g. \$20
- 11h. \$942.94
- 11i. \$11.32
- 11j. \$954.26
- 11k. \$20
- 11l. \$934.26
- 11m. \$11.21
- 11n. \$945.47
- 11o. \$20

Yes, the balance is decreasing.

10. Examine the credit card situations in Exercises 10 and 11. In each case, the credit card holder had no previous balance. The new balance was a result of purchases made that billing cycle. Identify whether or not the borrower can pay off the balance by making only the minimum payment each month. In both instances, no other charges are made to the account. Complete each chart for five billing cycles. Round all amounts to the nearest penny.

a. Balance: \$3,220.00

APR 17.52%

Minimum Payment \$40.00

Previous Balance	Interest	Balance	Minimum Payment
		\$3220.00	\$40.00
\$3180.00	a.	b.	c.
d.	e.	f.	g.
h.	i.	j.	k.
l.	m.	n.	o.

b. Balance: \$980.00

APR 14.4%

Minimum Payment \$20.00

Previous Balance	Interest	Balance	Minimum Payment
		\$980.00	\$20.00
\$960.00	a.	b.	c.
d.	e.	f.	g.
h.	i.	j.	k.
l.	m.	n.	o.