

4.8

Credit Card Finance Charges

GOALS

- Calculate finance charges using previous balance method
- Calculate finance charges using adjusted balance method
- Calculate finance charges using average daily balance method
- Calculate the finance charge on cash advances

Start Up

Holly Winter's credit card balance for April is \$250. The minimum amount that she is required to repay of that balance is \$3.75. The monthly finance charge on the same balance is 2%. If she continues to pay the minimum amount on her monthly balance, how many months will it take her to pay off the balance?

Math Skill Builder

Review these math skills and solve the exercises that follow.

- ① Add and subtract money amounts.

Find the sum. $\$209.34 + \$345.12 + \$16.54 - \$516.89 - \$28.76 = \25.35

1a. $\$507.22 + \$397.28 - \$44.20 - \579.93

1b. $\$183.02 + \$97.38 - \$88.73 - \38.99

- ② Multiply money amounts by decimals.

Multiply: $\$62.58 \times 0.0021 = \0.13

2a. $\$398.77 \times 0.000673$

2b. $\$220.81 \times 0.01975$

2c. $\$710.29 \times 0.2978$

2d. $\$1,297.55 \times 0.008271$

■ Previous Balance Method

If you don't pay your card balance in full by the due date, you will be assessed a finance charge. You also will lose the grace period for new purchases. Finance charges will be charged on new purchases from the day they are made.

A credit card finance charge is found by multiplying the card balance by the finance charge rate, or periodic rate. The finance charge rate is typically a daily or monthly rate found by dividing the annual percentage rate (APR) by either 365 or 12. Thus, an APR of 24% is a daily periodic rate of 0.0658% (rounded to the nearest ten thousandth) or a monthly periodic rate of 2%.

BUSINESS TIP

The monthly finance charge rate on a credit card balance is often called the *periodic rate*. The month for which you are billed is often called the *billing period*.

The amount of the finance charge depends on how the card company figures the balance in your account. This balance can be found by several methods.

The finance charge, new balance, and minimum payment due boxes in the statement are gray because these amounts will vary with the method used to find the balance on which the finance charge will be applied.

Trans- action Date	Post Date	Reference	Transaction Description		Payments & Credits	Loans, Fees, & Purchases
10/3	10/4	3165813T	Cardinal Shoe Stores, Inc.	Detroit, MI		128.99
10/7	10/9	4381R211	Vorax Gas Stations, Inc.	Detroit, MI		21.89
10/10	10/12	4Y659762	The Pasta Barn, Inc.	Detroit, MI		27.79
10/17	10/18	4897W544	Cardinal Shoe Stores-Return	Detroit, MI	35.99	
10/18	10/19	81976534	Annual membership fee			35.00
10/24	10/24	94681322	Payment Thank You		75.00	
Previous Balance	Purchases & Fees	Payments & Credits	Finance Charge	New Balance	Minimum Payment Due On Due Date	APR 18.000% Monthly Periodic Rate 1.5%
\$ 225.60	↑ 213.67	* 110.99				

The previous balance method charges interest on the balance in the account on the last billing date of the previous month. Any payments, credits, or new purchases in the current month are not included in the previous balance. Use the formula below to find the new balance.

Finance Charge = Previous Balance \times Periodic Rate

New Balance =

Previous Balance + (Finance Charge + New Purchases + Fees) - (Payments + Credits)

EXAMPLE 1

Laura Solon's card company uses the previous balance method to find the balance and to figure the finance charge. Find the finance charge for the month and the new balance.

SOLUTION

Rewrite the monthly periodic rate as a decimal and multiply by the previous balance to find the finance charge.

$$0.015 \times \$225.60 = \$3.384, \text{ or } \$3.38 \text{ finance charge for month}$$

Add to find the new balance.

$$\$225.60 + \$3.38 + \$213.67 - \$110.99 = \$331.66$$

■ CHECK YOUR UNDERSTANDING

- A. John Olden's credit card statement for April showed a previous balance of \$309.20, new purchases and fees of \$128.45, and payments and credits of \$75. The card's annual percentage rate is 24%. What is John's finance charge for April and new balance using the previous balance method?
- B. Sandra Minor's credit card company uses the previous balance method to calculate finance charges. Its APR is 21%. Sandra's credit card statement for June showed a previous balance of \$488.32, new purchases and fees of \$264.89, and payments and credits of \$300. What is Sandra's finance charge for June and her new balance?

■ Adjusted Balance Method

The adjusted balance method subtracts payments and credits during this month from the balance at the end of the previous month. Purchases and fees made during the current month are not included in the adjusted balance.

- ↘ $\text{Adjusted Balance} = \text{Previous Balance} - (\text{Payments} + \text{Credits})$
- ↘ $\text{Finance Charge} = \text{Adjusted Balance} \times \text{Periodic Rate}$
- ↘ $\text{New Balance} = \text{Adjusted Balance} + \text{Finance Charge} + \text{New Purchases} + \text{Fees}$

EXAMPLE 2

Suppose that Laura's card company uses the adjusted balance method to find the balance and figure the finance charge. Find the finance charge for the month and the new balance.

SOLUTION

Subtract the payments and credits from the previous balance to find the adjusted balance.

$$\$225.60 - \$110.99 = \$114.61 \quad \text{adjusted balance}$$

Write the monthly APR as a decimal and multiply by the adjusted balance to find the finance charge.

$$0.015 \times \$114.61 = \$1.719, \text{ or } \$1.72 \quad \text{finance charge}$$

Add the adjusted balance, finance charge, and new purchases and fees to find the new balance.

$$\$114.61 + \$1.72 + \$213.67 = \$330 \quad \text{new balance}$$



■ CHECK YOUR UNDERSTANDING

- C. Yossi Hussein uses a credit card that carries an 18% APR and uses the adjusted balance method for calculating finance charges. Yossi's statement listed these facts: previous balance, \$310.33; purchases, \$219.67; fees, \$75; payments, \$150; credits, \$62.69. What is Yossi's finance charge and new balance?
- D. Ricky Luciano's credit card statement showed a previous balance of \$166.98, purchases and fees of \$201.88, and payments and credits of \$75. If his card carried an APR of 21% and used the adjusted balance method to calculate finance charges, what is Ricky's finance charge and new balance?

■ Average Daily Balance Method

The average daily balance method is the most commonly used method for calculating the finance charge. When this method is used, the periodic rate is applied to the average daily balance in the account during the billing period. The dates used are the *post* dates. The card company starts with the beginning balance for each day.

The company subtracts any payments or credits posted during that day from the beginning balance. New purchases and fees posted for that day are added to the balance. The ending balances for every day are then totaled and divided by the number of days in the billing period to get the *average daily balance*.

$$\text{Daily Balance} = \text{Beginning Balance} - (\text{Payments} + \text{Credits}) + (\text{Purchases} + \text{Fees})$$

$$\text{Average Daily Balance} = \frac{\text{Sum of Daily Balances}}{\text{Number of Days in Billing Period}}$$

$$\text{Finance Charge} = \text{Average Daily Balance} \times \text{Monthly Periodic Rate}$$

$$\text{New Balance} = \text{Beginning Balance} - (\text{Payments} + \text{Credits}) + (\text{Finance Charges} + \text{New Purchases} + \text{Fees})$$

EXAMPLE 3

Suppose that Laura's card company uses the average daily balance method to figure the finance charge. Find the finance charge for the month and the new balance.

SOLUTION

Create a chart like the one below. A transaction is either a payment or a credit and subtracted from the balance, or purchase or fee and added to the balance. The balance at end of a day is the previous balance plus or minus any additions or deductions. The Number of Days is the number of days that the balance is in effect. The Sum of Daily Balances is the balance multiplied by the number of days.

Post Date	Transactions	Balance at End of Day	Number of Days	Sum of Daily Balances
10/1 (Bal.)	0.00	225.60	1	225.60
10/2-10/3	225.60	225.60	2	451.20
10/4	+128.99	354.59	1	354.59
10/5-10/8	0.00	354.59	4	1,418.36
10/9	+21.89	376.48	1	376.48
10/10-10/11	= 0.00	376.48	2	752.96
10/12	+27.79	404.27	1	404.27
10/13-10/17	0.00	404.27	5	2,021.35
10/18	-35.99	368.28	1	368.28
10/19	+35.00	403.28	1	403.28
10/20-10/23	0.00	403.28	4	1,613.12
10/24	-75.00	328.28	1	328.28
10/25-10/31	0.00	328.28	7	2,297.96

BUSINESS TIP

Some companies figure the average daily balance without adding the new purchases and fees. Check how your card company figures finance charges.

Add the column, "Sum of Daily Balances," and divide by 31, the number of days the statement covers.

$$\begin{aligned} & \$225.60 + \$451.20 + \$354.59 + \$1,418.36 + \$376.48 + \$752.96 + \$404.27 \\ & + \$2,021.35 + \$368.28 + \$403.28 + \$1,613.12 + \$328.28 + \$2,297.96 = \$11,015.73 \\ & \$11,015.73 \div 31 = \$355.346, \text{ or } \$355.35 \text{ average daily balance} \end{aligned}$$

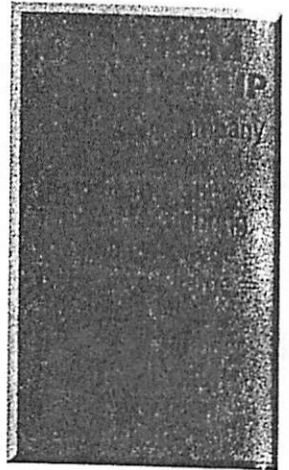
Write the monthly APR percentage as a decimal and multiply by the average daily balance: $0.015 \times \$355.35 = \5.33 finance charge

Subtract the payments and credits, and add the finance charges, purchases, and fees to previous balance.

$$\$225.60 - (\$35.99 + \$75) + (\$5.33 + \$213.67) = \$333.61 \text{ new balance}$$

■ CHECK YOUR UNDERSTANDING

- E. Jade Hameed's credit card statement for August showed these items: 8/1, previous balance, \$108.15; 8/5, purchase, \$56.89; 8/10, purchase, \$61.88; 8/14, purchase, \$190.23; 8/25, payment, \$150. Jade's card company uses a 1.6% monthly periodic rate and the average daily balance method. What is Jade's finance charge for August and the new balance?
- F. The credit card statement of Gloria Herrera for January listed these items: 1/1, previous balance, \$89.27; 1/5, purchase, \$159.34; 1/9, purchase, \$108.45; 1/24, payment, \$150; 1/28, fee, \$25. The card company uses the average daily balance method and a daily periodic rate of 0.000575. What is Gloria's finance charge for January and what is her new balance?



■ Cash Advances

You can get cash from an ATM using your credit card. However, you are borrowing money from the credit card company. Transactions of this type are called cash advances. Your credit card company will charge you a finance charge on the cash advance starting from the day you withdraw the money. There is no grace period for cash advances.

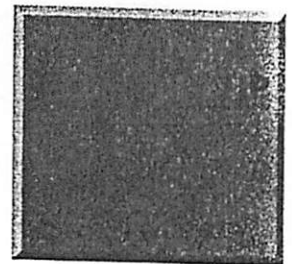
Card companies often charge you a one-time fee for the cash advance in addition to the finance charge. They often charge a higher periodic rate for cash advances than for regular balances.

To find the interest, multiply the amount of the advance (principal) by the daily periodic interest rate (rate) and number of days of the loan (time). To find the finance charge, add the interest to any fees paid. The cash advance and finance charge are added to find the amount needed to pay off the cash advance.

$$\text{Interest} = \text{Cash Advance} \times \text{Daily Periodic Rate} \times \text{Term of Advance in Days}$$

$$\text{Finance Charge} = \text{Interest} + \text{Fees}$$

$$\text{Payoff Amount} = \text{Cash Advance} + \text{Finance Charge}$$



EXAMPLE 4

Benito Moya borrowed \$500 for 20 days on his credit card using a cash advance. His card company charged a cash advance fee of \$29 and a daily periodic interest rate of 0.0573%. What was the total finance charge on the cash advance?

SOLUTION

Multiply the amount borrowed by the number of days for the advance and daily periodic rate to find the interest on the loan.

$$\$500 \times 20 \times 0.000573 = \$5.73 \quad \text{interest on cash advance}$$

Add to find the total finance charge.

$$\$5.73 + \$29 = \$34.73$$

■ CHECK YOUR UNDERSTANDING

- G. Vera Millay used her credit card in an ATM to borrow \$200 on a cash advance. Her card company charged a cash advance fee of \$5 and a daily periodic interest rate of 0.0487%. If Vera paid the loan back at the end of 25 days, what was the total finance charge on the cash advance?
- H. Akbar Assam borrowed \$150 on a cash advance from his credit card company. The card company charged a cash advance fee of \$20 and a daily periodic interest rate of 0.058% for the 35 days the loan ran. What total amount did Akbar need to pay off the loan?



Wrap Up

Look at the Start Up problem at the beginning of the lesson. The monthly finance charge on Holly's balance is \$5 ($2\% \times \250). Her minimum required payment is only \$3.75. Her minimum payment does not even fully cover the finance charge. At that rate, Holly's balance will grow each month and she will never pay it off.

TEAM MEETING

In most bank lobbies, there is a place where brochures about bank services are available free to the public. Among these brochures is usually a stack of brochures explaining how to apply for a credit card, including the credit card features and terms. With two other students,

- Obtain copies of these brochures from several banks or visit bank websites for information.
- After reading the brochures, make a chart listing the features common to all credit cards offered by these banks, such as balance transfer fees, late charges, and the method of calculating the bank balance and finance charge.
- Create columns to let you enter data for each credit card's features.
- Prepare a brief explanation of the chart that includes a discussion of the differences among the cards.

EXERCISES

Find the result.

1. $\$98.62 + \$978.22 - \$34.15 - \98.18
2. $\$789.23 + \$98.21 - \$44.63 - \641.09

Find the product.

3. $\$879.43 \times 0.00526$
4. $\$2,097.46 \times 0.0002978$
5. The October credit card statement for Genaro Rios had a previous balance of \$175.30, new purchases and fees of \$108.85, and payments and credits of \$125. The card's annual percentage rate is 21% and the previous balance method is used to figure the finance charge. What is Genaro's finance charge for October and new balance?
6. Toni Bando's credit card has an APR of 18% figured on the previous balance. The previous balance on Toni's credit card statement for July was \$308.88. During July she had new purchases and fees of \$276.49, and payments and credits of \$400. What is her finance charge for July and her new balance?
7. Otto Schein's credit card company charges an APR of 21% and applies it to the previous balance. Otto's December statement showed: previous balance, \$397.90; new purchases, \$341.89; fees, \$55; payments, \$500; purchase return, \$56.99. What is his finance charge for December and new balance?
8. A credit card company uses an APR of 15% and the adjusted balance method of computing finance charges. A credit card statement from the company lists the following: previous balance, \$601.87; purchases, \$209.88; fees, \$75; payments, \$400; credits, \$25. What was the finance charge for the month and new balance?
9. June Christo has a credit card statement that shows a previous balance of \$598.61, new purchases and fees of \$127.88, and payments and credits of \$250. Her card company charges an APR of 12% on the adjusted balance. What is June's finance charge and new balance?
10. **INTEGRATING YOUR KNOWLEDGE** You have two credit cards. The Banker's Card has a previous balance of \$301.55, carries an APR of 18%, and uses the previous balance method of figuring finance charges. The MallCard lists a previous balance of \$260.61 and payments and credits of \$175. It uses the adjusted balance method to find finance charges and carries an APR of 21%. Find the finance charge on both cards.
11. **DECISION MAKING** Your credit card statement shows a previous balance of \$231.86, payments and credits of \$125, and purchases and fees of \$175.66. Your current card company uses an APR of 15% and the adjusted balance method. Another credit card company that sent you an application in the mail also uses an APR of 15% but uses the previous balance method. Should you switch companies? Why or why not?
12. When Gorica Batic received her May credit card statement she found these items listed: 5/1, previous balance, \$281.59; 5/7, purchase, \$168.99; 5/10, purchase, \$57.98; 5/25, payment, \$200. Gorica's card company uses a 1.8% monthly periodic rate and the average daily balance method. What is Gorica's finance charge for May and her new balance?

13. The credit card statement of Luiz Lopea for June listed these items: 6/1, previous balance, \$193.29; 6/11, purchase, \$175.39; 6/15, purchase, \$71.84; 6/24, payment, \$75. The card company uses the average daily balance method and a daily periodic rate of 0.056%. What is Luiz's finance charge for June and what is his new balance?
14. Jareen Knabe borrowed \$800 for 30 days from her credit card company using a cash advance. The daily finance charge was 0.0543%. What was the finance charge on her loan?

Yvonne Clark used her credit card in an ATM for a \$325 cash advance. Her card company charges a daily periodic interest rate of 0.06% and charged a cash advance fee of \$19. Yvonne repaid the loan in 15 days.

15. What total finance charge did Yvonne pay for the cash advance?
16. How much did she pay to the card company to end the loan?

Isabel Aponte borrowed \$150 on a cash advance from her credit card company. The company charges a cash advance fee of \$20 and a daily periodic interest rate of 0.045%. If Isabel borrowed the money for 26 days

17. What was the total finance charge on the cash advance?
18. What total amount did Isabel pay to end the loan?

MIXED REVIEW

19. Divide 21.5% by 365, to the nearest hundredth.
20. $\$4,298 \times 50 \times 0.00042$
21. Find the average of these numbers: 8, 9, 11, 7, 8.
22. Write the ratio of 16 to 236 as a fraction.
23. Write $\frac{8}{24}$ as a percent.
24. Write 175% as a decimal.
25. Bella Tuller bought a tool chest and tools on the installment plan for a total cost of \$900. She paid \$200 down and the rest in monthly installments of \$28 each. How many months did it take Bella to pay for the tool chest and tools?
26. Rosa Rinaldi's total job benefits for the previous year were estimated to be \$62,976. However, her job expenses for the same job were: licenses, \$475; commuting costs, \$2,108; tools, \$197. What were her net job benefits for the year?
27. Maria Hernandez deposited these items on January 11: (bills) 15 twenties, 11 tens, 20 fives, 89 ones, (coins) 35 quarters, 65 dimes, 135 pennies, (checks) \$53.69, \$138.98. She received one \$100 bill back. What was her net deposit?
28. Sheila Wiggins' regular-time pay rate is \$12.60 an hour, time-and-a-half for overtime, and double time for work on Saturdays or Sundays. What is her overtime rate? What is her double-time rate?
29. Lung Shen used his credit card in an ATM to borrow \$300 on a cash advance. His card company charged a cash advance fee of \$15 and a daily periodic interest rate of 0.049%. Lung paid the loan back at the end of 15 days. What was the total finance charge on the cash advance?



Chapter Review

Vocabulary Review

adjusted balance method	exact interest method	principal
annual percentage rate	finance charge	promissory note
average daily balance method	interest	rate of interest
bank discount	ordinary interest method	time
cash advance	periodic rate	
down payment	previous balance method	

Fill in each blank with one of the terms above.

1. A way to find interest that uses a 365 day year is ____.
2. Interest on a promissory note collected in advance is ____.
3. Interest, fees, and other charges paid on an installment loan or purchase is the ____.
4. The true rate of interest on an installment loan is called ____.
5. The rate of interest on a credit card balance is called ____.
6. When you apply the periodic rate to the balance from the last statement and ignore purchases, fees, and payments from the current period, you are using the ____.
7. The amount charged for the use of money is called ____.
8. The amount that is borrowed is called the ____.

LESSON 4.1

9. Phyllis Snow borrowed \$3,200 to pay for a cruise. She signed a 6-month promissory note at 18% interest. Find the amount of interest Phyllis must pay. Then find the amount she must repay to her bank when the note comes due.
10. Oki Saga signed a promissory note for \$1,500 at 8% interest for 90 days. Find the interest and amount due she will pay when the note is due using a) ordinary interest and b) exact interest.
11. Mohamed Jatmiko paid \$660 in interest on a 6-month note for \$5,600. Find the rate of interest he paid.

LESSON 4.2

12. A bank discounted a \$2,600 noninterest-bearing note for Reba Deconcini at 12% interest for 6 months. Find the proceeds of the note.
13. Your bank discounted your 3-month, \$1,800, noninterest-bearing note. The discount rate was 15%. You received \$1,732.50 as proceeds. What true rate of interest, to the nearest tenth percent, did you pay on the note?

LESSON 4.3

14. Find the interest on: a) \$470 for 10 days at 9%; b) \$470 for 40 days at 10%.
15. Find the due date of: a) a 3-month note dated May 31; b) a 20-day note dated Oct. 21.

16. Find the number of days from January 13 to March 15.

LESSON 4.4

17. You can buy a DVD player for \$250 cash or pay \$50 down and the balance in 12 monthly payments of \$18. What is the installment price? By what percent would your installment price be greater than the cash price?
18. A stove costs \$525 on the installment plan. You must make a down payment of \$75 and make payments for 15 months. What will be your monthly payments?
19. Hector Morales borrowed \$2,400 on a one-year simple interest installment loan at 12% interest. The monthly payments were \$220. Find the amount of interest, amount applied to the principal, and the new balance for the first monthly payment.

LESSON 4.5

20. Lisa Valente bought a TV and paid for it with a 6-month Rule of 78 installment loan. The total finance charge for the loan was \$120. She repaid the loan at the end of the third month. Find the amount of Lisa's earned and unearned finance charges.
21. Rawal Jarish has a 12-month, \$6,300 Rule of 78 installment loan with a total finance charge of \$945. The monthly installment payments were \$603.75. He repays the loan at the end of 6 months. How much will Rawal pay to the bank?

LESSON 4.6

22. Maria Medina borrowed \$400 on a 12-month loan with a finance charge of \$39. Find the finance charge per \$100 of the amount financed and the annual percentage rate.

LESSON 4.7

23. Derek Wilson checked his credit card statement and found a sales slip for \$26.99 that was unauthorized. He also found that a sales slip for \$35.89 had been listed as \$38.59. If the new balance on his statement was \$140.68, what is his correct new balance?
24. Loni Dramer's credit card statement for April showed a membership fee of \$55, a late fee of \$25, a finance charge of \$6.45, and an over-the-limit fee of \$12. What was the total cost of the card to Loni in April?

LESSON 4.8

25. Juan Mendoza's credit card statement for October showed a previous balance of \$239.80, new purchases and fees of \$174.50, and payments and credits of \$95. The card's annual percentage rate is 24% and daily periodic rate is 0.06575%. What is Juan's finance charge and new balance for October using these methods: a) previous balance, b) adjusted balance? c) average daily balance?
26. Ula Johan borrowed \$250 on a cash advance from her credit card company. She was charged a cash advance fee of \$14 and a daily periodic interest rate of 0.053% for the 25 days the loan ran. What was the total amount Ula had to pay to end the loan?