\[ I = PRT \\
I = (2,318.29)(0.0517)(2) \\
I = 239.71 \]

At the end of the term, his account will contain both the principal and interest, so the total value of the account will be 
\[ 2,318.29 + 239.71 = 2,558.00 \]

There are many different types of financial institutions that offer checking and savings accounts, CDs, and other types of deposit accounts. Jake might have opened his CD at a savings and loan or credit union just as well as at a commercial bank. While there are differences in the range of services offered, eligibility to open accounts, and government regulation among these different types of institutions, the basic principles we are working with apply equally well to any of them. Following common practice, when we use the term bank in this book, it should be understood that we are not necessarily referring only to commercial banks, but to any sort of financial institution that offers loans and deposit accounts.

<table>
<thead>
<tr>
<th>Section 1.1 Summary</th>
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<tbody>
<tr>
<td><strong>Interest as “Rent” for Borrowed Money</strong></td>
</tr>
<tr>
<td>- Interest is “rent” the borrower (“debtor”) pays the lender (“creditor”) for a loan.</td>
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<tr>
<td>- Interest is added to the amount borrowed to get the total that must be repaid:</td>
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<tr>
<td>- Principal + Interest = Repayment Amount</td>
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<tr>
<td>- Interest can also be seen as the difference between what is borrowed and what is repaid:</td>
</tr>
<tr>
<td>- Repayment Amount - Principal = Interest</td>
</tr>
</tbody>
</table>

| Interest Rates as Percents |
| - Interest rates are stated as percents per year. |
| - To use an interest rate in a calculation, first move the decimal point two places to the left. |

| Mixed Number Rates |
| - Interest rates are sometimes stated as mixed numbers. |
| - Divide the fractional part on a calculator. |
| - Replace the fractional part with the result. |
| - Move the decimal two places to the left. |

| The Simple Interest Formula |
| - Interest = (Principal)(Interest Rate as a decimal)(Time in years) |
| - \[ I = PRT \] |

| Rounding Conventions |
| - Money amounts should be rounded to two decimal places. |
| - If the third decimal place is 5 or higher, round to the next highest penny. If the third decimal place is 4 or lower, leave the penny as-is. |

**EXERCISES 1.1**

**A. Interest as Difference**

1. Adrian borrowed $2,000 and paid back a total of $2,125. How much interest did he pay?
2. Sarah loaned Andrew $12,375 for 6 months. Andrew paid back $12,500. How much interest did he pay?
3. Kelli loaned Kerri $785.82, and 2 years later Kerri will pay back $854.29. How much total interest will Kelli receive?
4. Logan borrowed $24,318.79 and will have to repay a total of $27,174.25. How much interest will he pay?

**B. Adding Interest to Determine Repayment Amounts**

5. Tony loaned Josh $2,000. Josh agreed to pay Tony $300 simple interest for this loan. How much will Josh pay back?
6. Hannah borrowed $4,200 from Fifth National Bank, agreeing to pay $400 in simple interest for this loan. How much will she pay in total?
7. Jonas is borrowing $249.76 from Katrina for 1 year, and has agreed to pay $35.50 in simple interest. How much will Katrina receive when he pays her back?
8. Hanna has agreed to loan Taylor $85,529.68 and Taylor has agreed to pay $7,261.13 in simple interest. How much in total will Taylor have to give Hanna when she repays the loan?

**C. Terminology**

In each of the following situations, identify (a) the principal, (b) the term, (c) the creditor, and (d) the debtor.

9. Jen’s parents loaned her $2,500. She promised to pay them back $2,750 in 2 years.
10. Promethean Combustion Products borrowed $800,000 from Venture Capital Funding Corp. Three years from now Promethean will be required to pay back a total of $965,000.
D. Rewriting Percents as Decimals

11. Rewrite each of the following percent interest rates as decimals.

   a. 12%        g. 9 1/2%
   b. 15.3%      h. 19 3/4%
   c. 8%         i. 5 5/8%
   d. 4.35%      j. 20 7/16%
   e. 0.75%      k. 7/8%
   f. 125%       l. 375 1/8%

E. Interest as a Percent (One Year Loans)

12. Tameisha is loaning Jim $12,000 for 1 year. They have agreed that the simple interest rate for this loan will be 8%. Find the total amount of interest Jim will pay.

13. Alonzo loaned Jeremy $325,18 for 1 year at a simple interest rate of 12 1/4%. How much interest will Jeremy have to pay?

14. Samir borrowed $7,829.14 for 1 year at a simple interest rate of 9 3/4% per annum. How much will he need to repay the loan?

15. Terry has borrowed $8,200 for 1 year at a simple interest rate of 11.5% per annum. What is the total amount she will need to repay the loan?

F. Interest as a Percent (Multiple-Year Loans)

16. Westminster Capital Corp. loaned Milford Financial Inc. $100,000 for 2 years at 8% simple interest. How much interest will Milford Financial pay?

17. Kyle borrowed $800 from Gavin for 4 years at 5 1/2% simple interest. How much interest will Kyle pay for this loan?

18. Reza borrowed $16,000 from Wiscoy Savings and Loan for 3 years at 9.65% simple interest. How much total interest will he pay?

19. Wendy loaned Tom $2,896.17 for 8 years at 6.74% simple interest per annum. How much total interest will Wendy earn?

20. Yushe is borrowing $3,525 from Houghtonville National Bank for 2 years at 12.6% simple interest. How much will he need to repay the loan?

21. Mary has agreed to loan Karen $1,125.37 for 5 years at 7 1/2% simple interest. How much will Karen receive when the loan is repaid?
36. Express the following rates as decimals: (a) 4.37%, (b) 12.5%, and (c) 300%.

H. Additional Exercises

37. Sheldon paid $4,255 to settle a debt. The total interest he paid was $375. How much did he borrow originally?

38. Each of the following decimals represents an interest rate. Rewrite the rate as a percent.

a. 0.03  e. 0.387
b. 0.0475  f. 0.008
c. 0.125  g. 0.06569
d. 1.5  h. 0.0025

39. a. Tom deposited $5,000 in a 2-year certificate of deposit paying 8% simple interest. What was the value of his account at the end of the 2 years?
   b. Jerry deposited $5,000 in a 1-year certificate deposit paying 8% simple interest. At the end of the first year, he took his money and opened up a new 1-year certificate of deposit, also paying 8% simple interest. How much was Jerry’s account worth at the end of the 2 years?
   c. Since Tom and Jerry both had the same amount of money, the same amount of time, and the same interest rate, it would seem that they should both have ended up with the same amount of money. Why didn’t they?

40. Mireille has been offered the opportunity to own a restaurant franchise. Right now, she makes $60,000 per year as a computer analyst, but she projects that she would be able to earn $85,000 annually by quitting her current job and working full time managing the restaurant. However, she would need to invest $500,000 in the business upfront. If she were to invest this money elsewhere, she believes she could earn 7% simple interest per year on her money. Would she really be making more money from the franchise? Explain.

41. Determine the simple interest for a $2,000 loan at 5.25% for 6 months.

42. Determine the simple interest for a loan of $5,250 for 1 year if the simple interest rate is 1.25% per month.