

Book: Lial: Finite Mathematics, 10e

1. Find the simple interest.
\$1980 at 6.6% for 35 weeks
The simple interest is \$ 87.96 .
(Round to the nearest cent as needed.)

2. Find the simple interest on \$31,900 at 8.25% for 133 days. Assume 360 days in a year and 30 days in a month.
The simple interest on \$31,900 at 8.25% for 133 days is \$ 972.29 .
(Round to the nearest cent.)

3. A loan of \$17,978 was repaid at the end of 18 months. What size repayment check (principal and interest) was written, if an 8.7% annual rate of interest was charged?
The amount of the repayment check was \$ 20,324.13 . (Round to two decimal places.)

4. If \$1200 earned simple interest of \$56.25 in 2 months, what was the simple interest rate?
The simple interest rate is 28.1 %
(Do not round until the final answer. Then round to the nearest tenth as needed.)
YOU ANSWERED: 27.6

5. Suppose that \$30,000 is invested at 8% interest. Find the amount of money in the account after 5 years if the interest is compounded annually.
If interest is compounded annually, what is the amount of money after $t = 5$ years?
\$ 44,079.84
(Do not round until the final answer. Then round to the nearest cent as needed.)

6. Find the compound amount for the given deposit and the amount of interest earned.
\$4500 is invested at 7% compounded quarterly for 6 years
The compound amount is \$ 6823.99 .
(Do not round until the final answer. Then round to the nearest cent as needed.)
The amount of interest earned is \$ 2323.99 .
(Do not round until the final answer. Then round to the nearest cent as needed.)

7. Find the interest rate for the given deposit and compound amount.
\$4900 accumulating to \$5994.72, compounded monthly for 4 years.
The interest rate is %.
(Do not round until the final answer. Then round to the nearest hundredth as needed.)

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8. Determine the effective rate for \$1 invested for 1 year at 4.1% compounded semiannually.
- The effective rate is %.
- (Do not round until the final answer. Then round to the nearest thousandth as needed.)
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9. Find the present value (the amount that should be invested now to accumulate the following amount) if the money is compounded as indicated.
- \$14,136.25 at 8.7% compounded annually for 9 years
- The present value is \$.
- (Do not round until the final answer. Then round to the nearest cent as needed.)
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10. A company will need \$50,000 in 6 years for a new addition. To meet this goal, the company deposits money in an account today that pays 11% annual interest compounded quarterly. Find the amount that should be invested to total \$50,000 in 6 years.
- The company should invest \$.
- (Do not round until the final answer. Then round to the nearest dollar as needed.)
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11. Using either logarithms or a graphing calculator, find the time required for \$3000 to be at least equal to \$8,000 when deposited at 7% compounded monthly.
- years (Round to the nearest tenth of a year.)
-
12. For each of the following amounts at the given interest rate compounded continuously, find (a) the future value after 8 years, (b) the effective rate, and (c) the time to reach \$12,000.
- \$5900 at 3.2%
- (a) The future value after 8 years is approximately \$.
- (Do not round until the final answer. Then round to the nearest cent as needed.)
- (b) The effective rate is %.
- (Do not round until the final answer. Then round to two decimal places as needed.)
- (c) The time to reach \$12,000 from \$5900 at 3.2% is years.
- (Do not round until the final answer. Then round to two decimal places as needed.)
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13. A student borrows \$1000 at 10% for 9 months to pay tuition. Find the total amount due.
- The total amount due after 9 months is \$.
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14. Find the fifth term of the geometric sequence.

$$a = -2$$
$$r = 4$$

The fifth term of the geometric sequence is -512 .
(Simplify your answer.)

15. Find the sum of the first 5 terms of a geometric sequence with $a = 128$ and $r = -\frac{3}{2}$.

The sum is 440 .

16. Find the future value of the ordinary annuity. Interest is compounded annually.

$$R = \$4000; \quad i = 0.08; \quad n = 25$$

The future value of the ordinary annuity is \$ 27393.90 .
(Round to the nearest cent as needed.)

17. Find the future value of an ordinary annuity if payments are made in the amount R and interest is compounded as given. Then determine how much of this value is from contributions and how much is from interest.

$$R = 700; \quad 6.26\% \text{ interest compounded semiannually for 9 years.}$$

The future value of the ordinary annuity is \$ $16,583.68$.
(Round to the nearest cent as needed.)

The amount from contributions is \$ 700 and the amount from interest is \$ 519.00 . (Round to the nearest cent as needed.)

YOU ANSWERED: 1219.10

18. Find the future value of an ordinary annuity if payments are made in the amount R and interest is compounded as given. Then determine how much of this value is from contributions and how much is from interest.

$R = 14,000$; 4.2% interest compounded quarterly for 10 years.

The future value of the ordinary annuity is \$ 691510.11 .

(Round to the nearest cent as needed.)

The amount from contributions is \$ 560000 and the amount from interest is \$ 131510.11 . (Round to the nearest cent as needed.)

19. Find the interest rate needed for the sinking fund to reach the required amount. Assume that the compounding period is the same as the payment period.

\$26,576 to be accumulated in 5 years; quarterly payments of \$1100

The interest rate needed is approximately %.

(Type an integer or decimal rounded to two decimal places as needed.)

20. Find the periodic payment which will amount to a sum of \$20000 if an interest rate 8% is compounded annually at the end of 13 consecutive years.

The periodic payment is \$ 930.44 .

(Round to the nearest cent.)

YOU ANSWERED: 7354.00

21. Find the size of each of 9 payments made at the end of each year into a 6% rate sinking fund which produces \$81000 at the end of 9 years.

The payment size is \$ 7049.60 .

(Round to the nearest cent.)

22. Find the future value of the following annuity due. Assume that interest is compounded annually, there are n payments of R dollars, and the interest rate is i .

$R = 14,000$; $i = 0.04$; $n = 8$

The future value of the annuity due is \$ 128999.17 .

(Round to the nearest cent as needed.)

23. Find the future value of the following annuity due. Then determine how much of this value is from contributions and how much is from interest.

\$1400 deposited at the beginning of each semiannual period for 14 years at 8.54% compounded semiannually.

The account will have a total of \$ after 14 years.

(Round to the nearest cent as needed.)

How much of this is from contributions? \$

(Round to the nearest cent as needed.)

How much of this is from interest? \$

(Round to the nearest cent as needed.)

24. A woman deposits \$10,000 at the end of each year for 9 years in an account paying 4% interest compounded annually.

(a) Find the final amount she will have on deposit.

(b) Her brother-in-law works in a bank that pays 3% compounded annually. If she deposits money in this bank instead of the other one, how much will she have in her account?

(c) How much would she lose over 9 years by using her brother-in-law's bank?

(a) She will have a total of \$ on deposit.

(Simplify your answer. Round to the nearest cent as needed.)

(b) She will have a total of \$ on deposit in her brother-in-law's bank.

(Simplify your answer. Round to the nearest cent as needed.)

(c) She would lose \$ over 9 years by using her brother-in-law's bank.

(Simplify your answer. Round to the nearest cent as needed.)

25. A man deposits \$11,000 at the beginning of each year for 15 years in an account paying 8% compounded annually. He then puts the total amount on deposit in another account paying 9% compounded semiannually for another 11 years. Find the final amount on deposit after the entire 26-year period.

He will have a final amount of \$ after the entire 26-year period.

(Simplify your answer. Round to the nearest cent as needed.)

26. Find the present value of an ordinary annuity which has payments of \$1200 per year for 11 years at 6% compounded annually.

The present value is \$.

(Round to the nearest cent.)

27. Find the present value of an ordinary annuity with deposits of \$7,775 quarterly for 9 years at 10.8% compounded quarterly.

What is the present value?

\$

(Round to the nearest cent.)

28. Find the lump sum deposited today that will yield the same total amount as payments of \$15,000 at the end of each year for 14 years, at an interest rate of 4% compounded annually.

The lump sum is \$.

(Round to the nearest cent.)

29. Find the payment necessary to amortize a 4.5% loan of \$7900 compounded semiannually, with 6 semiannual payments. Find (a) the payment necessary to amortize the loan and (b) the total payments and the total amount of interest paid based on the calculated semiannual payments. Then create an amortization table to find (c) the total payments and total amount of interest paid based upon the amortization table.

a. The semiannual payment needed to amortize this loan is \$.

(Round to the nearest cent as needed.)

b. The total amount of the payments is \$.

(Round to the nearest cent as needed.)

The total amount of interest paid is \$.

(Round to the nearest cent as needed.)

c. The total payment for this loan from the amortization table is \$.

The total interest from the amortization table is \$.

30. Use the amortization table to determine how much interest is paid in the first 4 months of the loan.



Click the icon to view the amortization table.

\$ (Type an integer or a decimal.)

Amortization Table

Amortization Table 					
Payment Number	Amount of Payment	Interest for Period	Portion to Principal	Principal at End of Period	
0	—	—	—	\$4000.00	
1	\$344.27	\$20.00	\$324.27	\$3675.73	
2	\$344.27	\$18.38	\$325.89	\$3349.84	
3	\$344.27	\$16.75	\$327.52	\$3022.32	
4	\$344.27	\$15.11	\$329.16	\$2693.16	
5	\$344.27	\$13.47	\$330.80	\$2362.36	
6	\$344.27	\$11.81	\$332.46	\$2029.90	
7	\$344.27	\$10.15	\$334.12	\$1695.78	
8	\$344.27	\$8.48	\$335.79	\$1359.99	
9	\$344.27	\$6.80	\$337.47	\$1022.52	
10	\$344.27	\$5.11	\$339.16	\$683.36	
11	\$344.27	\$3.42	\$340.85	\$342.51	
12	\$344.22	\$1.71	\$342.51	\$0.00	

31. Find the monthly house payments necessary to amortize a 6.0% loan of \$153,500 over 30 years.

The payment size is \$.

(Round to the nearest cent.)

32. The payment necessary to amortize a 4.8% loan of \$92,000 compounded annually, with 7 annual payments is \$15,784.38. The total of the payments is \$110,490.66 with a total interest payment of \$18,490.66. The borrower made larger payments of \$16,000.00. Calculate (a) the time needed to pay off the loan, (b) the total amount of the payments, and (c) the amount of interest saved.

a. The time needed to pay off the loan with payments of \$16,000.00 is years.
(Round up to the nearest year.)

b. The total amount of the payments is \$.
(Round to the nearest cent as needed.)

c. The amount of interest saved is \$.
(Round to the nearest cent as needed.)

33. Fritz Benjamin buys a car costing \$16200. He agrees to make payments at the end of each monthly period for 6 years. He pays 9.6% interest, compounded monthly. What is the amount of each payment? Find the total amount of interest Fritz will pay.

Fritz's monthly payment is \$.

(Round to the nearest cent.)

Fritz will pay a total of \$ in interest.

(Round to the nearest cent.)

34. A new employee charged \$4750 on his credit card to relocate for his first job. After noticing that the interest rate for his balance was 24% compounded monthly, he stopped charging on that account. He wishes to pay off his balance in 2 years using automatic payments sent at the end of each month.

- a. What monthly payment must he make to pay off the account at the end of 2 years?
b. How much total interest will he have paid?

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\$ (Round to the nearest cent as needed.)

b. How much total interest will he have paid?

\$ (Round to the nearest cent as needed.)

35. Large semitrailer trucks cost \$105,000 each. A trucking company buys such a truck and agrees to pay for it by a loan that will be amortized with 10 semiannual payments at 16% compounded semiannually. Complete an amortization schedule for the first four payments of the loan.

Fill out the amortization schedule below.

(Round to the nearest cent as needed. Do not include the \$ symbol in your answers.)

Payment Number	Amount of Payment	Interest Payment	Applied to Principal	Balance
				\$105,000
1	\$ 21725.64	\$ 8400	\$ 13325.64	\$ 91674.36
2	\$	\$	\$	\$
3	\$	\$	\$	\$
4	\$	\$	\$	\$