

Chapter 6 Time Value of Money Concepts

AACSB assurance of learning standards in accounting and business education require documentation of outcomes assessment. Although schools, departments, and faculty may approach assessment and its documentation differently, one approach is to provide specific questions on exams that become the basis for assessment. To aid faculty in this endeavor, we have labeled each question, exercise, and problem in *Intermediate Accounting, 7e*, with the following AACSB learning skills:

Questions	AACSB Tags	Exercises (cont.)	AACSB Tags
6-1	Reflective thinking	6-9	Analytic
6-2	Reflective thinking	6-10	Analytic
6-3	Reflective thinking	6-11	Analytic
6-4	Reflective thinking	6-12	Analytic
6-5	Reflective thinking	6-13	Analytic
6-6	Reflective thinking	6-14	Analytic
6-7	Reflective thinking	6-15	Analytic
6-8	Reflective thinking	6-16	Analytic
6-9	Reflective thinking	6-17	Analytic
6-10	Analytic	6-18	Analytic
6-11	Analytic	6-19	Analytic
6-12	Reflective thinking	6-20	Analytic
6-13	Reflective thinking	6-21	Reflective thinking
6-14	Analytic	CPA/CMA	
6-15	Reflective thinking, Communications	1	Analytic
Brief Exercises		2	Analytic
6-1	Analytic	3	Analytic
6-2	Analytic	4	Analytic
6-3	Analytic	5	Analytic
6-4	Analytic	6	Analytic
6-5	Analytic	7	Analytic
6-6	Analytic	1	Analytic
6-7	Analytic	2	Reflective thinking
6-8	Analytic	Problems	
6-9	Analytic	6-1	Analytic
6-10	Analytic	6-2	Analytic
6-11	Analytic	6-3	Analytic
6-12	Analytic	6-4	Analytic
6-13	Analytic	6-5	Analytic
Exercises		6-6	Analytic
6-1	Analytic	6-7	Analytic
6-2	Analytic	6-8	Analytic
6-3	Analytic	6-9	Analytic
6-4	Analytic	6-10	Analytic
6-5	Analytic	6-11	Analytic
6-6	Analytic	6-12	Analytic
6-7	Analytic	6-13	Analytic
6-8	Analytic	6-14	Analytic
		6-15	Analytic

QUESTIONS FOR REVIEW OF KEY TOPICS

Question 6–1

Interest is the amount of money paid or received in excess of the amount borrowed or lent.

Question 6–2

Compound interest includes interest not only on the original invested amount but also on the accumulated interest from previous periods.

Question 6–3

If interest is compounded more frequently than once a year, the effective rate or yield will be higher than the annual stated rate.

Question 6–4

The three items of information necessary to compute the future value of a single amount are the original invested amount, the interest rate (i), and the number of compounding periods (n).

Question 6–5

The present value of a single amount is the amount of money today that is equivalent to a given amount to be received or paid in the future.

Question 6–6

Monetary assets and monetary liabilities represent cash or fixed claims/commitments to receive/pay cash in the future and are valued at the present value of these fixed cash flows. All other assets and liabilities are nonmonetary.

Question 6–7

An annuity is a series of equal-sized cash flows occurring over equal intervals of time.

Question 6–8

An ordinary annuity exists when the cash flows occur at the *end* of each period. In an annuity due the cash flows occur at the *beginning* of each period.

Question 6–9

Table 2 lists the present value of \$1 factors for various time periods and interest rates. The factors in Table 4 are simply the summation of the individual PV of \$1 factors from Table 2.

Answers to Questions (continued)

Question 6–10

Present Value					
?					
0	Year 1	Year 2	Year 3	Year 4	
	\$200	\$200	\$200	\$200	
	$n = 4, i = 10\%$				

Question 6–11

Present Value					
?					
0	Year 1	Year 2	Year 3	Year 4	
\$200	\$200	\$200	\$200		
	$n = 4, i = 10\%$				

Question 6–12

A deferred annuity exists when the first cash flow occurs more than one period after the date the agreement begins.

Question 6–13

The formula for computing present value of an ordinary annuity incorporating the ordinary annuity factors from Table 4 is:

$$PVA = \text{Annuity amount} \times \text{Ordinary annuity factor}$$

Solving for the annuity amount,

$$\text{Annuity amount} = \frac{PVA}{\text{Ordinary annuity factor}}$$

The annuity factor can be obtained from Table 4 at the intersection of the 8% column and 5 period row.

Question 6–14

$$\begin{aligned}\text{Annuity amount} &= \frac{\$500}{3.99271} \\ \text{Annuity amount} &= \$125.23\end{aligned}$$

Answers to Questions (concluded)

Question 6–15

Companies frequently acquire the use of assets by leasing rather than purchasing them. Leases usually require the payment of fixed amounts at regular intervals over the life of the lease. Certain leases are treated in a manner similar to an installment sale by the lessor and an installment purchase by the lessee. In other words, the lessor records a receivable and the lessee records a liability for the several installment payments. For the lessee, this requires that the leased asset and corresponding lease liability be valued at the present value of the lease payments.

BRIEF EXERCISES

Brief Exercise 6–1

Fran should choose the second investment opportunity. More rapid compounding has the effect of increasing the actual rate, which is called the **effective rate**, at which money grows per year. For the second opportunity, there are four, three-month periods paying interest at 2% (one-quarter of the annual rate). \$10,000 invested will grow to \$10,824 ($\$10,000 \times 1.0824^*$). The effective annual interest rate, often referred to as the annual yield, is 8.24% ($\$824 \div \$10,000$), compared to just 8% for the first opportunity.

* Future value of \$1: $n = 4$, $i = 2\%$ (from Table 1)

Brief Exercise 6–2

Bill will not have enough accumulated to take the trip. The future value of his investment of \$23,153 is \$347 short of \$23,500.

$$FV = \$20,000 (1.15763^*) = \textbf{\$23,153}$$

* Future value of \$1: $n = 3$, $i = 5\%$ (from Table 1)

Brief Exercise 6–3

$$FV \text{ factor} = \frac{\$26,600}{\$20,000} = 1.33^*$$

* Future value of \$1: $n = 3$, $i = ?$ (from Table 1, $i =$ approximately **10%**)

Brief Exercise 6–4

John would be willing to invest no more than \$12,673 in this opportunity.

$$PV = \$16,000 (.79209^*) = \textbf{\$12,673}$$

* Present value of \$1: $n = 4$, $i = 6\%$ (from Table 2)

Brief Exercise 6–5

$$PV \text{ factor} = \frac{\$13,200}{\$16,000} = .825^*$$

* Present value of \$1: $n = 4$, $i = ?$ (from Table 2, $i =$ approximately **5%**)

Brief Exercise 6–6

Interest is paid for 12 periods at 1% (one-quarter of the annual rate).

$$\text{FVA} = \$500 (12.6825^*) = \text{\textcolor{blue}{\$6,341}}$$

* Future value of an ordinary annuity of \$1: $n = 12$, $i = 1\%$ (from Table 3)

Brief Exercise 6–7

Interest is paid for 12 periods at 1% (one-quarter of the annual rate).

$$\text{FVAD} = \$500 (12.8093^*) = \text{\textcolor{blue}{\$6,405}}$$

* Future value of an annuity due of \$1: $n = 12$, $i = 1\%$ (from Table 5)

Brief Exercise 6–8

$$\text{PVA} = \$10,000 (4.10020^*) = \text{\textcolor{blue}{\$41,002}}$$

* Present value of an ordinary annuity of \$1: $n = 5$, $i = 7\%$ (from Table 4)

Brief Exercise 6–9

$$\text{PVAD} = \$10,000 (4.38721^*) = \text{\textcolor{blue}{\$43,872}}$$

* Present value of an annuity due of \$1: $n = 5$, $i = 7\%$ (from Table 6)

Brief Exercise 6–10

$$\text{PVA} = \$10,000 \times 4.10020^* = \$41,002$$

* Present value of an ordinary annuity of \$1: $n = 5$, $i = 7\%$ (from Table 4)

$$\text{PV} = \$41,002 \times .87344^* = \text{\textcolor{blue}{\$35,813}}$$

* Present value of \$1: $n = 2$, $i = 7\%$ (from Table 2)

Or alternatively:

From Table 4,

$$\text{PVA factor, } n = 7, i = 7\% = 5.38929$$

$$- \text{PVA factor, } n = 2, i = 7\% = \underline{1.80802}$$

$$= \text{PV factor for deferred annuity} = 3.58127$$

$$\text{PV} = \$10,000 \times 3.58127 = \$35,813 \text{ (rounded)}$$

Brief Exercise 6–11

$$\text{Annuity} = \frac{\$100,000}{6.71008^*} = \$14,903 = \text{Payment}$$

* Present value of an ordinary annuity of \$1: $n = 10$, $i = 8\%$ (from Table 4)

Brief Exercise 6–12

$$\text{PV} = \$6,000,000^1 (12.40904^*) + 100,000,000 (.13137^{**})$$

$$\text{PV} = \$74,454,240 + 13,137,000 = \$87,591,240 = \text{price of the bonds}$$

¹ $\$100,000,000 \times 6\% = \$6,000,000$

* Present value of an ordinary annuity of \$1: $n = 30$, $i = 7\%$ (from Table 4)

** Present value of \$1: $n = 30$, $i = 7\%$ (from Table 2)

Brief Exercise 6–13

$$\text{PVAD} = \$55,000 (7.24689^*) = \$398,579 = \text{Liability}$$

* Present value of an annuity due of \$1: $n = 10$, $i = 8\%$ (from Table 6)

EXERCISES

Exercise 6–1

1. $FV = \$15,000 (2.01220^*) = \text{\textcolor{blue}{\$30,183}}$

* Future value of \$1: $n = 12, i = 6\%$ (from Table 1)

2. $FV = \$20,000 (2.15892^*) = \text{\textcolor{blue}{\$43,178}}$

* Future value of \$1: $n = 10, i = 8\%$ (from Table 1)

3. $FV = \$30,000 (9.64629^*) = \text{\textcolor{blue}{\$289,389}}$

* Future value of \$1: $n = 20, i = 12\%$ (from Table 1)

4. $FV = \$50,000 (1.60103^*) = \text{\textcolor{blue}{\$80,052}}$

* Future value of \$1: $n = 12, i = 4\%$ (from Table 1)

Exercise 6–2

1. $FV = \$10,000 (2.65330^*) = \text{\textcolor{blue}{\$26,533}}$

* Future value of \$1: $n = 20, i = 5\%$ (from Table 1)

2. $FV = \$10,000 (1.80611^*) = \text{\textcolor{blue}{\$18,061}}$

* Future value of \$1: $n = 20, i = 3\%$ (from Table 1)

3. $FV = \$10,000 (1.81136^*) = \text{\textcolor{blue}{\$18,114}}$

* Future value of \$1: $n = 30, i = 2\%$ (from Table 1)

Exercise 6–3

1. $PV = \$20,000 (.50835^*) = \text{\textcolor{blue}{\$10,167}}$

* Present value of \$1: $n = 10, i = 7\%$ (from Table 2)

2. $PV = \$14,000 (.39711^*) = \text{\textcolor{blue}{\$5,560}}$

* Present value of \$1: $n = 12, i = 8\%$ (from Table 2)

3. $PV = \$25,000 (.10367^*) = \text{\textcolor{blue}{\$2,592}}$

* Present value of \$1: $n = 20, i = 12\%$ (from Table 2)

4. $PV = \$40,000 (.46651^*) = \text{\textcolor{blue}{\$18,660}}$

* Present value of \$1: $n = 8, i = 10\%$ (from Table 2)

Exercise 6–4

	Payment		PV of \$1 <i>i</i> =8%		PV	<i>n</i>
First payment:	\$5,000	x	.92593	=	\$ 4,630	1
Second payment	6,000	x	.85734	=	5,144	2
Third payment	8,000	x	.73503	=	5,880	4
Fourth payment	9,000	x	.63017	=	<u>5,672</u>	6
	Total				<u>\$21,326</u>	

Exercise 6–5

$$PV = \$85,000 (.82645^*) = \text{\textcolor{blue}{\$70,248}} = \text{Note/revenue}$$

* Present value of \$1: $n = 2$, $i = 10\%$ (from Table 2)

Exercise 6–6

$$1. \quad PV = \$40,000 (.62092^*) = \text{\textcolor{blue}{\$24,837}}$$

* Present value of \$1: $n = 5$, $i = 10\%$ (from Table 2)

$$2. \quad \frac{\text{\textcolor{blue}{\$36,289}}}{\$65,000} = .55829^*$$

* Present value of \$1: $n = 10$, $i = ?$ (from Table 2, i = approximately **6%**)

$$3. \quad \frac{\text{\textcolor{blue}{\$15,884}}}{\$40,000} = .3971^*$$

* Present value of \$1: $n = ?$, $i = 8\%$ (from Table 2, n = approximately **12 years**)

$$4. \quad \frac{\text{\textcolor{blue}{\$46,651}}}{\$100,000} = .46651^*$$

* Present value of \$1: $n = 8$, $i = ?$ (from Table 2, i = approximately **10%**)

$$5. \quad FV = \$15,376 (3.86968^*) = \text{\textcolor{blue}{\$59,500}}$$

* Future value of \$1: $n = 20$, $i = 7\%$ (from Table 1)

Exercise 6–7

1. $FVA = \$2,000 (4.7793^*) = \$9,559$

* Future value of an ordinary annuity of \$1: $n = 4$, $i = 12\%$ (from Table 3)

2. $FVAD = \$2,000 (5.3528^*) = \$10,706$

* Future value of an annuity due of \$1: $n = 4$, $i = 12\%$ (from Table 5)

3.	FV of \$1				
	Deposit		$i=3\%$	FV	n
First deposit:	\$2,000	x	1.60471 =	\$ 3,209	16
Second deposit	2,000	x	1.42576 =	2,852	12
Third deposit	2,000	x	1.26677 =	2,534	8
Fourth deposit	2,000	x	1.12551 =	<u>2,251</u>	4
	Total			<u>\$10,846</u>	

4. $\$2,000 \times 4 = \$8,000$

Exercise 6–8

1. $PVA = \$5,000 (3.60478^*) = \$18,024$

* Present value of an ordinary annuity of \$1: $n = 5$, $i = 12\%$ (from Table 4)

2. $PVAD = \$5,000 (4.03735^*) = \$20,187$

* Present value of an annuity due of \$1: $n = 5$, $i = 12\%$ (from Table 6)

3.	PV of \$1				
	Payment		$i = 3\%$		n
First payment:	\$5,000	x	.88849	=	\$ 4,442 4
Second payment	5,000	x	.78941	=	3,947 8
Third payment	5,000	x	.70138	=	3,507 12
Fourth payment	5,000	x	.62317	=	3,116 16
Fifth payment	5,000	x	.55368	=	<u>2,768</u> 20
	Total				<u><u>\$17,780</u></u>

Exercise 6–9

1. $PVA = \$3,000 (3.99271^*) = \mathbf{\$11,978}$

* Present value of an ordinary annuity of \$1: $n = 5$, $i = 8\%$ (from Table 4)

2. $\frac{\$242,980}{\$75,000} = 3.23973^*$

* Present value of an ordinary annuity of \$1: $n = 4$, $i = ?$ (from Table 4, $i =$ approximately **9%**)

3. $\frac{\$161,214}{\$20,000} = 8.0607^*$

* Present value of an ordinary annuity of \$1: $n = ?$, $i = 9\%$ (from Table 4, $n =$ approximately **15 years**)

4. $\frac{\$500,000}{\$80,518} = 6.20979^*$

* Present value of an ordinary annuity of \$1: $n = 8$, $i = ?$ (from Table 4, $i =$ approximately **6%**)

5. $\frac{\$250,000}{3.16987^*} = \mathbf{\$78,868}$

* Present value of an ordinary annuity of \$1: $n = 4$, $i = 10\%$ (from Table 4)

Exercise 6–10

Requirement 1

$$PV = \$100,000 (.68058^*) = \text{\textcolor{blue}{\$68,058}}$$

* Present value of \$1: $n = 5$, $i = 8\%$ (from Table 2)

Requirement 2

$$\text{Annuity amount} = \frac{\$100,000}{5.8666^*}$$

* Future value of an ordinary annuity of \$1: $n = 5$, $i = 8\%$ (from Table 3)

$$\text{Annuity amount} = \text{\textcolor{blue}{\$17,046}}$$

Requirement 3

$$\text{Annuity amount} = \frac{\$100,000}{6.3359^*}$$

* Future value of an annuity due of \$1: $n = 5$, $i = 8\%$ (from Table 5)

$$\text{Annuity amount} = \text{\textcolor{blue}{\$15,783}}$$

Exercise 6–11

1. Choose the option with the highest present value.

(1) $PV = \$64,000$

(2) $PV = \$20,000 + 8,000 (4.91732^*)$

* Present value of an ordinary annuity of \$1: $n = 6$, $i = 6\%$ (from Table 4)

$$PV = \$20,000 + 39,339 = \$59,339$$

(3) $PV = \$13,000 (4.91732^*) = \$63,925$

Alex should choose option (1).

2. $FVA = \$100,000 (13.8164^*) = \$1,381,640$

* Future value of an ordinary annuity of \$1: $n = 10$, $i = 7\%$ (from Table 3)

Exercise 6–12

$$PVA = \$5,000 \times 4.35526^* = \$21,776$$

* Present value of an ordinary annuity of \$1: $n = 6$, $i = 10\%$ (from Table 4)

$$PV = \$21,776 \times .82645^* = \$17,997$$

* Present value of \$1: $n = 2$, $i = 10\%$ (from Table 2)

Or alternatively:

From Table 4,

$$PVA \text{ factor, } n = 8, i = 10\% = 5.33493$$

$$- PVA \text{ factor, } n = 2, i = 10\% = \underline{1.73554}$$

$$= PV \text{ factor for deferred annuity} = 3.59939$$

$$PV = \$5,000 \times 3.59939 = \$17,997$$

Exercise 6–13

$$\text{Annuity} = \frac{\$20,000 - 5,000}{22.39646^*} = \$670 = \text{Payment}$$

* Present value of an ordinary annuity of \$1: $n = 30$, $i = 2\%$ (from Table 4)

Exercise 6–14

$$\text{PVA factor} = \frac{\$100,000}{\$13,388} = 7.46938^*$$

* Present value of an ordinary annuity of \$1: $n = 20$, $i = ?$ (from Table 4, $i =$ approximately 12%)

Exercise 6–15

$$\text{Annuity} = \frac{\$12,000}{16.35143^*} = \$734 = \text{Payment}$$

* Present value of an ordinary annuity of \$1: $n = 20$, $i = 2\%$ (from Table 4)
5 years x 4 quarters = 20 periods
 $8\% \div 4 \text{ quarters} = 2\%$

Exercise 6–16

$$PV = ? \times .90573^* = 1,200$$

$$PV = \frac{\$1,200}{.90573^*} = \$1,325$$

* Present value of \$1: $n = 5$, $i = 2\%$ (from Table 2)

$$PVA = \frac{?}{\text{annuity amount}} \times 14.99203^* = \$1,325$$

$$PVA = \frac{\$1,325}{14.99203^*} = \$88 = \text{Payment}$$

* Present value of an ordinary annuity of \$1: $n = 18$, $i = 2\%$ (from Table 4)

Exercise 6–17

To determine the price of the bonds, we calculate the present value of the 40-period annuity (40 semiannual interest payments of \$12 million) and the lump-sum payment of \$300 million paid at maturity using the semiannual market rate of interest of 5%. In equation form,

$$\begin{aligned} PV &= \$12,000,000^1 (17.15909^*) + 300,000,000 (.14205^{**}) \\ PV &= \$205,909,080 + 42,615,000 = \$248,524,080 = \text{price of the bonds} \end{aligned}$$

¹ $\$300,000,000 \times 4\% = \$12,000,000$

* Present value of an ordinary annuity of \$1: $n = 40$, $i = 5\%$ (from Table 4)

** Present value of \$1: $n = 40$, $i = 5\%$ (from Table 2)

Exercise 6–18

Requirement 1

To determine the price of the bonds, we calculate the present value of the 30-period annuity (30 semiannual interest payments of \$6 million) and the lump-sum payment of \$200 million paid at maturity using the semiannual market rate of interest of 2.5%. In equation form,

$$\begin{aligned} \text{PV} &= \$6,000,000^1 (20.93029^*) + 200,000,000 (.47674) \\ \text{PV} &= \$125,581,740 + 95,348,000 = \text{\textcolor{blue}{\$220,929,740}} = \text{price of the bonds} \end{aligned}$$

$$^1 \$200,000,000 \times 3\% = \$6,000,000$$

* Present value of an ordinary annuity of \$1: $n = 30$, $i = 2.5\%$ (from Table 4)

** Present value of \$1: $n = 30$, $i = 2.5\%$ (from Table 2)

Requirement 2

$$\$220,929,740 \times 2.5\% = \text{\textcolor{blue}{\$5,523,244}}$$

Because the bonds were outstanding only for six months of the year, Singleton reports only one-half year's interest in 2013.

Exercise 6–19

Requirement 1

$$\text{PVA} = \$400,000 (10.59401^*) = \text{\textcolor{blue}{\$4,237,604}} = \text{Liability}$$

* Present value of an ordinary annuity of \$1: $n = 20$, $i = 7\%$ (from Table 4)

Requirement 2

$$\text{PVAD} = \$400,000 (11.33560^*) = \text{\textcolor{blue}{\$4,534,240}} = \text{Liability}$$

* Present value of an annuity due of \$1: $n = 20$, $i = 7\%$ (from Table 6)

Exercise 6–20

$$\text{PVA factor} = \frac{\$2,293,984}{\$200,000} = 11.46992^*$$

* Present value of an ordinary annuity of \$1: $n = 20$, $i = ?$ (from Table 4, $i = \text{\textcolor{blue}{6\%}}$)

Exercise 6–21

List A

- e 1. Interest
- m 2. Monetary asset
- j 3. Compound interest
- i 4. Simple interest
- k 5. Annuity
- l 6. Present value of a single amount
- c 7. Annuity due
- d 8. Future value of a single amount
- a 9. Ordinary annuity
- b 10. Effective rate or yield
- h 11. Nonmonetary asset
- g 12. Time value of money
- f 13. Monetary liability

List B

- a. First cash flow occurs one period after agreement begins.
- b. The rate at which money will actually grow during a year.
- c. First cash flow occurs on the first day of the agreement.
- d. The amount of money that a dollar will grow to.
- e. Amount of money paid/received in excess of amount borrowed/lent.
- f. Obligation to pay a sum of cash, the amount of which is fixed.
- g. Money can be invested today and grow to a larger amount.
- h. No fixed dollar amount attached.
- i. Computed by multiplying an invested amount by the interest rate.
- j. Interest calculated on invested amount plus accumulated interest.
- k. A series of equal-sized cash flows.
- l. Amount of money required today that is equivalent to a given future amount.
- m. Claim to receive a fixed amount of money.

CPA / CMA REVIEW QUESTIONS

CPA Exam Questions

1. **b.** $PV = FV \times PV \text{ factor}$,
 $PV = \$25,458 \times 0.3075 = \text{\$7,828}$
2. **d.** The sales price is equal to the present value of the note payments:

Present value of first payment	\$ 60,000
Present value of last six payments:	
$\$60,000 \times 4.36$	<u>261,600</u>
Sales price	\$321,600
3. **a.** $PVA = \$100 \times 4.96764 = \text{\$497}$
4. **b.** First solve for present value of a four-year ordinary annuity:
 $PVA = \$100 \times 3.03735 = \$304$
Then discount back two years:
 $PV = \$304 \times 0.79719 = \text{\$242}$
5. **d.** $PVAD = \$100,000 \times 9.24424 = \text{\$924,424}$
6. **a.** $PVA = \$100 \times 5.65022 = \$565$ (present value of the interest payments)
 $PV = \$1,000 \times 0.32197 = \text{\$322}$ (present value of the face amount)
Total present value = **\\$887** = current market value of the bond
7. **a.** $PVA = PMT \times PVA \text{ factor}$
 $\$15,000 = PMT \times 44.955$
 $PMT = \text{\$334}$

CMA Exam Questions

1. **d.** Both future value tables will be used because the \$75,000 already in the account will be multiplied times the future value factor of 1.26 to determine the amount three years hence, or \$94,500. The three payments of \$4,000 represent an ordinary annuity. Multiplying the three-period annuity factor (3.25) by the payment amount (\$4,000) results in a future value of the annuity of \$13,000. Adding the two elements together produces a total account balance of **\$107,500**.
2. **a.** An annuity is a series of cash flows or other economic benefits occurring at fixed intervals, ordinarily as a result of an investment. Present value is the value at a specified time of an amount or amounts to be paid or received later, discounted at some interest rate. In an annuity due, the payments occur at the beginning, rather than at the end, of the periods. Thus, the present value of an annuity due includes the initial payment at its undiscounted amount. This lease should be evaluated using the present value of an annuity due.

以上内容仅为本文档的试下载部分，为可阅读页数的一半内容。如要下载或阅读全文，请访问：<https://d.book118.com/236003210132010132>