MIT Sloan School of Management
15.516x: Financial Accounting

GRADING	**Pts. Avail.**	**Pts. Earned**
Revenue Recognition	7	_____
Inventory	10	_____
Fixed Assets – Decision Making	22	_____
Intangible Assets – Decision Making	26	_____
DuPont Decomposition	9	_____
Miscellaneous	10	_____
Taxes	20	_____
Leases and Bonds	55	_____
Total	159	_____

The attached financial statements are an excerpt from Nike's fiscal 2017 annual report (year ended May 31, 2017). Please use these financial statements to answer the Questions 1-32.

When asked to show or provide the journal entry, use the balance sheet equation format as we did in class. Show your work and any assumptions you made in answering the questions (where applicable).

Formulas

Gross Profit Margin	= (Revenue – COGS)/Revenue
ROE	= Net Income / Ending Equity
ROA	= Net Income / Ending Assets
Profit Margin	= Net Income / Sales
Asset Turnover	= Sales / Ending Assets
Leverage	= Ending Assets / Ending Equity

Revenue Recognition

= revenue

1. What was Nike's total net revenue during the fiscal year ending on 5/31/2017? (1 points)

$34,350M (page 97)

2. What were the total gross and net accounts receivables for Nike on 5/31/2017? (2 points)

Net accounts receivables: $3,677M (page 99)

Gross accounts receivables: $3,677M (page 99) + $19M (the allowance for uncollectible accounts receivable, page 104) = $3,696M

3. Was *Nike's* bad debt expense higher, equal or lower than actual write off of accounts receivable during the fiscal year ending on 5/31/2017? Briefly explain your answer. (4 points)

The allowance for uncollectible accounts receivable was $19 million and $43 million at May 31, 2017 and 2016, respectively

19<43, so lower

Higher Equal Lower

Δallowance for uncollectible accounts receivable = $19M - $43M (page 104) = -$24M.
Δallowance for uncollectible accounts receivable = bad debt expense – write off = -$24M
=> bad debt expense = write off - $24M
=> bad debt expense was lower than write off

Inventory

4. What was the total inventory for *Nike* on 5/31/2017? (1 points)

$5,055M (page 99 or page 107)

5. What was *Nike's* Gross Profit Margin during the fiscal year ending on 5/31/2017? How do you interpret this number? (3 points)

Gross Profit Margin = (Revenue – COGS) / Revenue
= ($34,350M - $19,038M) / $34,350M (page 97)
= $15,312M / $34,350M (page 97)
= 44.58%
The proportion of money left over revenues after accounting for COGS is 44.6%.

6. One of *Nike's* main competitors reported the following information for the 2017 fiscal year:

Revenue under LIFO (in millions):	$3,963
COGS under LIFO (in millions):	$2,259

LIFO Reserve: $422 (in millions) in 2016, $518 (in millions) in 2017

Was *Nike's* Gross Profit Margin higher, the same or lower than its competitor's during the fiscal year ending on 5/31/2017? Assume that Nike uses FIFO. Provide the calculations to support your answer. (6 points)

Higher Equal Lower

We assume that Nike uses FIFO. Nike's competitor uses LIFO.
To compare gross profit margins for Nike and that for its competitor, we need to compute the competitor's COGS under FIFO.
ΔLIFO Reserve = COGS under LIFO – COGS under FIFO
=> $96M (=$518M - $422M) = $2,259M – COGS under FIFO
=> COGS under FIFO = $2,163M
Gross Profit Margin (under FIFO) for Nike's competitor = ($3,963M - $2,163M)/$3,963M = 45.4%
Nike's gross profit margin of 44.6% is lower than the competitor's gross profit margin.

Fixed Assets – Decision Making

7. What were the total gross and net Property, Plant and Equipment (PPE) for *Nike* on 5/31/2017? How do you interpret these amounts? (2 points)

Gross PPE = $7,958M (page 107)

Net PPE = $3,989M (page 107 or page 99)

Capitalized cost (or CAPEX) of PPE held is $7,958M, and the accumulated depreciation expense for PPE held is $3,969M. This gives the net PPE value of $3,989M.

In answering questions 8-12, assume that the transactions described below are *in addition to* those in the financial statements you have. For example, *Nike* shows $3,808 million in cash and equivalents on 5/31/2017. Any cash generated/used by the following transactions are *in addition to* this $3,808 million.

Suppose *Nike* was considering one of the two alternatives to finance a set of machines for its *Flyknit* shoe lines. Also assume the decision is made on the very first day of the following fiscal year (that is, on 6/1/2017).

A) Issue a par bond with a face value of $50 million and a coupon rate of 2%. The face value is due at the end of year 5. Invest the proceeds from the bond to purchase the machines (recorded as Property, Plant and Equipment). The machines have a useful life of five years and zero salvage value.

B) Sign a rental agreement of five payments of $11 million per year. The rental agreement will be treated as an operating lease *under the old standard* for accounting purposes.

8. Use the Balance Sheet Equation (BSE) to identify the transactions *Nike* would record to reflect the issuance of the bond and the acquisition of the PPE (option A) at the decision date. That is, at the beginning of the 2018 fiscal year on 6/1/2017. (4 points)

Assets			=	Liabilities	+	S/E
Cash	+	PPE		Bond Payable		
$50M				$50M		
($50M)		50M				

9. Use the Balance Sheet Equation (BSE) to identify the transactions *Nike* would record to reflect the issuance of the bond and the acquisition of the PPE (option A) <u>at the end of the next fiscal year on 5/31/2018</u>. (4 points)

Assets				= Liabilities	+ S/E	
Cash	+ PPE	- Accum. Dep.		Bond Payable	R/E	
($1M)					($1M)	
(=2%*$50M)						Int. Expense
		$10M			($10M)	Dep. Expense
		(=($50M-0)/5)				

10. Use the Balance Sheet Equation (BSE) to identify the transactions *Nike* would record to reflect the rental agreement (option B) <u>at the decision date</u>. That is, at the beginning of the 2018 fiscal year on 6/1/2017. (4 points)

No entry. Recall that the rental agreement will be treated as an operating lease under the old standard for accounting purposes.

11. Use the Balance Sheet Equation (BSE) to identify the transactions *Nike* would record to reflect the rental agreement (option B) <u>at the end of the next fiscal year on 5/31/2018</u>. (4 points)

Assets				= Liabilities	+ S/E	
Cash	+ PPE	- Accum. Dep.		Bond Payable	R/E	
($11M)					($11M)	Rent expense

12. Suppose that the bonus plan for *Nike*'s employees is partially tied to a performance metric such as return on assets (ROA). How would the two options above affect the return on assets (ROA), and ultimately the bonus plan, during the 2018 fiscal year? In 1-2 sentences explain your answer. *Ignore taxes.* (4 points)

A: expense of $11M
B: expense of $11M
=> All else constant, net income is the same. However, B results in lower assets. As a result, option B results in a higher ROA.

Intangible Assets – Decision Making

13. What was the total net identifiable intangible assets for *Nike* on 5/31/2017? What do these intangibles consist of? (4 points)

Nike's total net identifiable intangible assets consists of: (Note 3, Page 107)

1. Indefinite-lived trademarks $281M (no amortization is applied to indefinite-lived trademarks),
2. Gross acquired trademarks and other intangible assets $19M and related accumulated amortization $17M

=> $281M + $19M – $17M = $283M (on page 99)

14. What was the total goodwill for *Nike* on 5/31/2017? (2 points)

$139M (page 99 or page 107)

15. Did *Nike* impair its goodwill during the fiscal year ending on 5/31/2017? If so, by how much? (2 points)

No (page 107)

In answering questions 16-20, assume that the transactions described below are *in addition to* those in the financial statements you have. For example, *Nike* shows $3,808 million in cash and equivalents on 5/31/2017. Any cash generated/used by the following transactions are *in addition to* this $3,808 million.

Suppose *Nike* was considering one of the two alternatives to invest in a new technology of its *Dry Fit* shirts. Also assume the decision is made on the very first day of the following fiscal year (that is, on 6/1/2017).

A) Spend $10 million per year over the next three years. This decision would be treated as Research and Development for accounting purposes.

B) Acquire a startup that has developed a recent *Dry Fit* technology for $40 million. The acquisition cost consists of a patent worth of $32 million and $8 million of acquisition synergies. The patent has a useful life of four years.

16. Use the Balance Sheet Equation (BSE) to identify the transactions *Nike* would record to reflect the R&D investment (option A) at the decision date. That is, at the beginning of the 2018 fiscal year on 6/1/2017. (4 points)

No entry cost has not been expensed

17. Use the Balance Sheet Equation (BSE) to identify the transactions *Nike* would record to reflect the R&D investment (option A) at the end of the next fiscal year on 5/31/2018. (4 points)

Assets	=	Liabilities	+	S/E	
Cash				R/E	
($10M)	=			($10M)	R&D Expense

18. Use the Balance Sheet Equation (BSE) to identify the transactions *Nike* would record to reflect the acquisition (option B) at the decision date. That is, at the beginning of the 2018 fiscal year on 6/1/2017. (4 points)

Assets					=	Liabilities	+	S/E
Cash	+	Intangible Assets	+	Goodwill				
($40M)		$32M		$8M				

19. Use the Balance Sheet Equation (BSE) to identify the transactions *Nike* would record to reflect the acquisition (option B) at the end of the next fiscal year on 5/31/2018. Assume that the value of the goodwill was impaired by $1 million during the 2018 fiscal year. (4 points)

Two possible answers:

Assets						=	Liab. +	S/E	
Intangibles	-	Accum. Amortization	+	Goodwill	-	Accum. Impairment	=	R/E	
		$8M (=$32M/4)						($8M)	Patent amortization expense
						$1M		($1M)	Loss from goodwill impairment

OR

Assets						=	Liab. +	S/E	
Intangibles	-	Accum. Amortization	+	Goodwill	-	Accum. Impairment	=	R/E	
		$8M (=$32M/4)						($8M)	Patent amortization expense
				($1M)				($1M)	Loss from goodwill impairment

20. Which of the two options would result in a higher net income during the 2018 fiscal year? In 1-2 sentences explain your answer. *Ignore taxes.* (2 points)

A: Income effect of $10M
B: Income effect of $9M
=> B will result in a higher net income

DuPont Decomposition

21. Use the DuPont decomposition learned in class to decompose *Nike*'s return on equity (ROE) into (i) Profit Margin, (ii) Asset Turnover and (iii) Leverage. For this question use the numbers as reported in the financial statements without any adjustments. (6 points)

ROE = Net profit margin * asset turnover * leverage

Where:

ROE =	NI / Stockholders' Equity =	$4,240M / $12,407M =	34.17%
Net profit margin =	NI / Sales =	$4,240M / $34,350M =	12.34%
Asset turnover =	Sales / Assets =	$34,350M / $23,259M =	1.47
Leverage =	Assets / Stockholders' Equity =	$23,259M / $12,407M =	1.87

(based on pages 97 and 99)

22. One of *Nike's* main competitors reported the following information for the 2017 fiscal year:

ROE:	15.35%
ROA:	9.36%
Profit Margin:	5.85%
Asset Turnover:	1.60
Leverage:	1.64

How do you compare *Nike* to its competitors? Use different metrics to substantiate your answer. (3 points)

Nike's metrics:
ROE = 34.17% (see above)
ROA = 18.2% (= $4,240M / $23,259M)
Profit Margin = 12.34% (see above)
Asset Turnover = 1.47 (see above)
Leverage = 1.87 (see above)

Nike has better profitability (i.e, ROE, ROA, Profit margin) than its competitor. Nike's asset turnover is slightly smaller than that of its competitor. Finally, Nike has higher leverage.

Miscellaneous

23. Provide an example of *Nike's* accrued liabilities during the fiscal year ending on 5/31/2017? Use the Balance Sheet Equation (BSE) to record this transaction. (2 points)

For example,

Assets	=	Liabilities	+	S/E	
Cash		Dividend Payable		R/E	
		$300M		($300M)	Dividend expense
OR					
		$29M (=$300M-$271M)		($29M)	Dividend expense

24. How much cash did *Nike* return to its investors in the form of dividends and share repurchases during the fiscal year ending on 5/31/2017? (2 points)

$1,133M as dividends, and $3,223M as stock repurchases (page 100)

25. Did *Nike* buy/sell marketable securities in the form of short-term investments using cash during the fiscal year ending on 5/31/2017? If so, by how much? (2 points)

Nike's short-term investments consist of available-for-sale securities. [Page 104]
Purchases of short-term investments ($5,928M) [Page 100]
do not omit Sales of short-term investments $2,423M [Page 100]

26. What was *Nike's* total advertising and promotion expenses during the fiscal year ending on 5/31/2017 (2 points)

$3,341M (page 103)

27. What were *Nike's* cash flow from operations (CFO), cash flow from investment (CFI) and cash flow from financing (CFF) during the fiscal year ending on 5/31/2017? Based on these numbers which stage of life cycle is *Nike* in? (2 points)

CFO = $3,640M
CFI = ($1,008M)
CFF = ($1,942M)

Nike distributes a lot of its wealth to its shareholders (CFF) through dividends and share repurchases. Also, it has generated steady, positive cash flows from operations (CFO) throughout 2015-2017, while making decent amounts of investment (CFI). Nike is most likely to be in the maturity stage.

Taxes

28. Use the Balance Sheet Equation (BSE) to identify the transactions Nike would record to reflect the provision for income taxes for the fiscal year ending on 5/31/2017? Assume that all the difference between income tax expense and deferred tax liability is paid in cash as income tax (e.g., Ignore disclosure about cash paid for income taxes in statements of cash flows). (3 points)

Assets	=	Liabilities	+	S/E
Cash		DTL		R/E
($919M) *Taxes paid*		($273M)		($646M) *Income tax expense*

OR

Assets			=	Liabilities	+	S/E
Cash		DTA				R/E
($919M) *Taxes paid*	+	$273M				($646M) *Income tax expense*

29. For the fiscal year ending on 5/31/2017, Nike recorded a change in its valuation allowance for deferred tax assets. Use the Balance Sheet Equation (BSE) to identify the transactions Nike would record to reflect this transaction, and clearly label the accounts affected. (3 points)

Assets	=	Liabilities	+	S/E
DTA – Valuation Allowance				R/E
$30M (=82M-52M)				($30M) *Income tax expense*

30. As of 5/31/2017, how much did Nike reduce its income taxes payable over the life of its operations due to a timing difference in book income and taxable income associated with property, plant, and equipment (e.g., depreciation)? (3 points).

$254M (Page 111)

31. Determine the increase or decrease in Nike's deferred compensation that is implied by the change in the deferred tax asset associated with deferred compensation ending on 5/31/2017. Please assume that Nike has a 30% tax rate for this question. (3 points)

$74M (=348M-274M) = 30% * Change in Deferred Compensation

⇨ Increase in Deferred Compensation by $246.667M

32. Recently, the US changed its corporate tax rate to 21% from 35%. At a conceptual level, would this tax rate change affect a US domestic company's (i) deferred tax asset (DTA) and (ii) deferred tax liability (DTL)? (4 points)

    If the tax rate change affects the DTA and/or DTL, specific by how much would the DTA/DTL increase or decrease. (4 points)

Both the DTA and DTL will be reduced as a result of the tax rate reduction.

The balance of DTA (or DTL) will go down to: (DTA or DTL) * (21% / 35%)

Going forward, the reduction will equal: ~~(35% – 21%)~~ * (DTA or DTL)
(35%–21%)/35%

FOR THE REMAINDER OF THESE PROBLEMS, DO NOT USE THE NUMBERS IN NIKE'S FINANCIAL STATEMENTS.

RATHER, USE ONLY THE NUMBERS PROVIDED IN THE QUESTIONS BELOW

FOR THE FOLLOWING QUESTIONs, ASSUME A 0% TAX RATE.

Recall that there is a new standard for leases as of 2019. Suppose that Zoltan Corp executes a new lease on January 1, 2020, and accounts for it using the new standard. The three payments on the lease are $100 thousand per year, and are due each December 31. The terms of the lease are summarized below:

Annual lease payment:	**$100,000**
Term of lease:	**3 years**
Interest rate:	**5.00%**
Lease commences on:	**January 1, 2020**
Payments due:	**December 31 of each year in the lease term**

33. What transaction does Zoltan record when they initiate the lease on January 1, 2020 if the lease is treated as an operating lease ***under the new standard***? (5 points)

PVAnnuity (3 year, 5%) = 2.72325
Capitalized amount = 2.72325 * $100,000 = $272,325

Assets	=	Liabilities	+	S/E
Leased Asset		Lease Liability		
$272,325		$272,325		

34. How does your anser to 33 above change if this were an finance lease ***under the new standard***? (2 points)

Initial transaction is the same:

Assets	=	Liabilities	+	S/E
Leased Asset		Lease Liability		
$272,325		$272,325		

35. If this were an operating lease ***under the new standard***, what transactions would Zoltan record on December 31, 2020? *Ignore taxes. (*5 points)

"Interest expense" = $272,325 x 5%= $13,616
Reduction in lease obligation = 100,000 (lease payment) – 13,616 ("interest expense")
= $86,384

Assets		=	Liabilities	+	S/E
Cash	Leased Asset		Lease Liability		R/E
($100,000)	($86,384)		($86,384)		($100,000) *Lease expense*

36. If this were a finance lease ***under the new standard***, what transactions would Zoltan record on December 31, 2020? *Ignore taxes. (*5 points)

"Interest expense" = $272,325 x 5%= $13,616
Reduction in lease obligation = 100,000 (lease payment) – 13,616 ("interest expense")
= $86,384

Straight-line depreciation over 3 years = 272,325 / 3 = $90,775

Assets			=	Liabilities	+	S/E
Cash	Leased Asset	Acc Dep.		Lease Liability		R/E
($100,000)				($86,384)		($13,616) *Lease exp*
		(90,775)				(90,775) *Dep. Exp.*

37. Assume that instead of the lease on January 1, 2020, Zoltan issues a three-year zero coupon bond. The market rate of interest for Zoltan is 5%, the face value of the bond is $315,250. Assume that they use all of the proceeds to purchase the equipment (<u>so that no lease is needed</u>). That is, assume the equipment costs Zoltan exactly the amount of cash raised from the zero coupon bond. What transactions would they record on January 1, 2020 for the bond issuance and asset purchase? *Please remember that the asset has a 3-year useful life and zero salvage value.* (5 points)

Cash raised = 315,250 / 1.05^3 = $272,325

Assets		=	Liabilities		+	S/E
Cash	PP&E		Bond Payable	Discount (XL)		
$272,325			$315,520	($42,925)		
$272,325	$272,325					

38. What transaction would they record on December 31, 2020 for the zero coupon bond and asset purchase from the question above? *Please round to the nearest thousand; Ignore taxes*. (5 points)

Depreciation expense = $272,325 / 3 = $90,775
Interest expense = 5% x $272,325 = $13,616

Assets	=	Liabilities	+	S/E
Accumulated Depreciation (XA)		Discount (XL)		R/E
		$13,616		($13,616) *Interest Exp*
($90,775)				($90,775) *Depr. Exp*

39. Zoltan is concerned about their cash position. Please calculate the effect of each of these alternatives on net cash outflows for the for the year December 31, 2020. *Ignore taxes.* (5 points)

Net cash outflows for the operating lease for the year December 31, 2020 will be **$100,000.**

Net cash outflows for the finance lease for the year December 31, 2020 will be **$100,000**.

Net cash outflows for the asset purchased by issuing a zero coupon bond for the year December 31, 2020 will be **$0**. (cash raised by issuing bond was fully spent on PP&E)

40. Zoltan is concerned about their debt covenants, which restrict their ability to take on any additional liabilities. Please calculate the incremental effect of each of these alternatives on total liabilities on December 31, 2020. *Ignore taxes*. (5 points)
until include January 1, 2020
Incremental total liabilities for the operating lease at December 31, 2020 will be **$185,941.**

$272,325 (Zero coupon bond from Q37) - $86,384 (Reduction in lease obligation)
= $185,941

Incremental total liabilities for the capital lease at December 31, 2020 will be **$185,941.**

This will be the same as operating lease – see example in slides and above.

Incremental total liabilities for the asset purchased by issuing a zero coupon bond (net of discounts) at December 31, 2020 will be **$285,941.**

Zero coupon bond at December 31, 2020 = 1.05 x $272,325 = $285,941

41. Zoltan is concerned about their net income. Please calculate the effect of each of these alternatives on net income for the year December 31, 2020. *Ignore taxes*. (5 points)

The effect on net income for the operating lease for the year December 31, 2020 will be **- $100,000**.

The effect on net income for the capital lease for the year December 31, 2020 will be **- $104,391**. (See question 36)

Interest expense = $272,325 x 5%= $13,616
Straight-line depreciation over 3 years = 272,325 / 3 = $90,775
Capital lease effect on net income = - (Interest expense + Depreciation expense)
= - (90,775 + 13,616) = -104,391

The effect on net income for the asset purchased by issuing a zero coupon bond for the year December 31, 2020 will be **- $104,391**. (See question 38)

Capital lease effect on net income = - (Interest expense + Depreciation expense)
= - (90,775 + 13,616) = -104,391

42. Over the life of the asset, which of the three options (operating lease, capital lease, purchasing the asset and funding it with a zero coupon bond) will cause net income to be the lowest? (5 points)

We know the operating and finance lease will have the same total effect. The finance lease is more (less) expensive in early (later) years – see example in slides and above.

Interest expense = Sum of undiscounted payments ($300,000) – Present value ($272,325)
= $27,675 interest expense
Total depreciation expense = $272,325

Total expense for operating and finance leases = Interest exp. + Total depreciation exp.
= $27,675 + $272,325 = $300,000

Zero coupon: -$272,325 for depreciation plus -$42,925 (= total interest over three years = initial discount) = -$315,250

Therefore, the zero-coupon bond would cause net income to be the lowest. As notice in class, because there are no interim payments of interest, total interest expense for the zero-coupon bond is higher.

TABLE 1 Present Value of Single Amount

	Interest Rate									
Period	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10
1	0.99010	0.98039	0.97087	0.96154	0.95238	0.94340	0.93458	0.92593	0.91743	0.90909
2	0.98030	0.96117	0.94260	0.92456	0.90703	0.89000	0.87344	0.85734	0.84168	0.82645
3	0.97059	0.94232	0.91514	0.88900	0.86384	0.83962	0.81630	0.79383	0.77218	0.75131
4	0.96098	0.92385	0.88849	0.85480	0.82270	0.79209	0.76290	0.73503	0.70843	0.68301
5	0.95147	0.90573	0.86261	0.82193	0.78353	0.74726	0.71299	0.68058	0.64993	0.62092
6	0.94205	0.88797	0.83748	0.79031	0.74622	0.70496	0.66634	0.63017	0.59627	0.56447
7	0.93272	0.87056	0.81309	0.75992	0.71068	0.66506	0.62275	0.58349	0.54703	0.51316
8	0.92348	0.85349	0.78941	0.73069	0.67684	0.62741	0.58201	0.54027	0.50187	0.46651
9	0.91434	0.83676	0.76642	0.70259	0.64461	0.59190	0.54393	0.50025	0.46043	0.42410
10	0.90529	0.82035	0.74409	0.67556	0.61391	0.55839	0.50835	0.46319	0.42241	0.38554
11	0.89632	0.80426	0.72242	0.64958	0.58468	0.52679	0.47509	0.42888	0.38753	0.35049
12	0.88745	0.78849	0.70138	0.62460	0.55684	0.49697	0.44401	0.39711	0.35553	0.31863
13	0.87866	0.77303	0.68095	0.60057	0.53032	0.46884	0.41496	0.36770	0.32618	0.28966
14	0.86996	0.75788	0.66112	0.57748	0.50507	0.44230	0.38782	0.34046	0.29925	0.26333
15	0.86135	0.74301	0.64186	0.55526	0.48102	0.41727	0.36245	0.31524	0.27454	0.23939
16	0.85282	0.72845	0.62317	0.53391	0.45811	0.39365	0.33873	0.29189	0.25187	0.21763
17	0.84438	0.71416	0.60502	0.51337	0.43630	0.37136	0.31657	0.27027	0.23107	0.19784
18	0.83602	0.70016	0.58739	0.49363	0.41552	0.35034	0.29586	0.25025	0.21199	0.17986
19	0.82774	0.68643	0.57029	0.47464	0.39573	0.33051	0.27651	0.23171	0.19449	0.16351
20	0.81954	0.67297	0.55368	0.45639	0.37689	0.31180	0.25842	0.21455	0.17843	0.14864
21	0.81143	0.65978	0.53755	0.43883	0.35894	0.29416	0.24151	0.19866	0.16370	0.13513
22	0.80340	0.64684	0.52189	0.42196	0.34185	0.27751	0.22571	0.18394	0.15018	0.12285
23	0.79544	0.63416	0.50669	0.40573	0.32557	0.26180	0.21095	0.17032	0.13778	0.11168
24	0.78757	0.62172	0.49193	0.39012	0.31007	0.24698	0.19715	0.15770	0.12640	0.10153
25	0.77977	0.60953	0.47761	0.37512	0.29530	0.23300	0.18425	0.14602	0.11597	0.09230
30	0.74192	0.55207	0.41199	0.30832	0.23138	0.17411	0.13137	0.09938	0.07537	0.05731
35	0.70591	0.50003	0.35538	0.25342	0.18129	0.13011	0.09366	0.06763	0.04899	0.03558
40	0.67165	0.45289	0.30656	0.20829	0.14205	0.09722	0.06678	0.04603	0.03184	0.02209

TABLE 2 Present Value of Ordinary Annuity $p = \{1 -$

	Interest Rate										
Period	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	
1	0.99010	0.98039	0.97087	0.96154	0.95238	0.94340	0.93458	0.92593	0.91743	0.90909	0.
2	1.97040	1.94156	1.91347	1.88609	1.85941	1.83339	1.80802	1.78326	1.75911	1.73554	1.
3	2.94099	2.88388	2.82861	2.77509	2.72325	2.67301	2.62432	2.57710	2.53129	2.48685	2.
4	3.90197	3.80773	3.71710	3.62990	3.54595	3.46511	3.38721	3.31213	3.23972	3.16987	3.
5	4.85343	4.71346	4.57971	4.45182	4.32948	4.21236	4.10020	3.99271	3.88965	3.79079	3.
6	5.79548	5.60143	5.41719	5.24214	5.07569	4.91732	4.76654	4.62288	4.48592	4.35526	4.
7	6.72819	6.47199	6.23028	6.00205	5.78637	5.58238	5.38929	5.20637	5.03295	4.86842	4.
8	7.65168	7.32548	7.01969	6.73274	6.46321	6.20979	5.97130	5.74664	5.53482	5.33493	5.
9	8.56602	8.16224	7.78611	7.43533	7.10782	6.80169	6.51523	6.24689	5.99525	5.75902	5.
10	9.47130	8.98259	8.53020	8.11090	7.72173	7.36009	7.02358	6.71008	6.41766	6.14457	5.
11	10.36763	9.78685	9.25262	8.76048	8.30641	7.88687	7.49867	7.13896	6.80519	6.49506	6.
12	11.25508	10.57534	9.95400	9.38507	8.86325	8.38384	7.94269	7.53608	7.16073	6.81369	6.
13	12.13374	11.34837	10.63496	9.98565	9.39357	8.85268	8.35765	7.90378	7.48690	7.10336	6.
14	13.00370	12.10625	11.29607	10.56312	9.89864	9.29498	8.74547	8.24424	7.78615	7.36669	6.
15	13.86505	12.84926	11.93794	11.11839	10.37966	9.71225	9.10791	8.55948	8.06069	7.60608	7.
16	14.71787	13.57771	12.56110	11.65230	10.83777	10.10590	9.44665	8.85137	8.31256	7.82371	7.
17	15.56225	14.29187	13.16612	12.16567	11.27407	10.47726	9.76322	9.12164	8.54363	8.02155	7.
18	16.39827	14.99203	13.75351	12.65930	11.68959	10.82760	10.05909	9.37189	8.75563	8.20141	7.
19	17.22601	15.67846	14.32380	13.13394	12.08532	11.15812	10.33560	9.60360	8.95011	8.36492	7.
20	18.04555	16.35143	14.87747	13.59033	12.46221	11.46992	10.59401	9.81815	9.12855	8.51356	7.
21	18.85698	17.01121	15.41502	14.02916	12.82115	11.76408	10.83553	10.01680	9.29224	8.64869	8.
22	19.66038	17.65805	15.93692	14.45112	13.16300	12.04158	11.06124	10.20074	9.44243	8.77154	8.
23	20.45582	18.29220	16.44361	14.85684	13.48857	12.30338	11.27219	10.37106	9.58021	8.88322	8.
24	21.24339	18.91393	16.93554	15.24696	13.79864	12.55036	11.46933	10.52876	9.70661	8.98474	8.
25	22.02316	19.52346	17.41315	15.62208	14.09394	12.78336	11.65358	10.67478	9.82258	9.07704	8.
30	25.80771	22.39646	19.60044	17.29203	15.37245	13.76483	12.40904	11.25778	10.27365	9.42691	8.
35	29.40858	24.99862	21.48722	18.66461	16.37419	14.49825	12.94767	11.65457	10.56682	9.64416	8.
40	32.83469	27.35548	23.11477	19.79277	17.15909	15.04630	13.33171	11.92461	10.75736	9.77905	8.