

Solutions

Chapter 1

Try It! Solutions

- | | |
|------|-------|
| 1. e | 9. i |
| 2. a | 10. c |
| 3. d | 11. a |
| 4. b | 12. h |
| 5. f | 13. b |
| 6. c | 14. g |
| 7. d | 15. e |
| 8. f | |

16.

ASSETS	}	=	{	LIABILITIES +	EQUITY
				Owner's Capital	Owner's Withdrawals + Revenues - Expenses
\$71,288				\$2,260 + ?	- \$14,420 + \$53,085 - \$28,675
\$71,288				\$2,260 + \$59,038	- \$14,420 + \$53,085 - \$28,675

17.

	ASSETS					LIABILITIES +	EQUITY				
	Cash	+	Accounts Receivable	+ Equipment		Accounts Payable	+	Lawlor, Capital	- Lawlor, Withdrawals	+ Service Revenue	- Gas Expense
May 1	+1,700				}			+1,700			
Bal.	<u>\$1,700</u>							<u>\$1,700</u>			
3				+1,440			+1,440				
Bal.	<u>\$1,700</u>			<u>\$1,440</u>			<u>\$1,440</u>	+			
5			+200								
Bal.	<u>\$1,700</u>	+	<u>\$200</u>	<u>\$1,440</u>			<u>\$1,440</u>	+			+200
17	-60										
Bal.	<u>\$1,640</u>	+	<u>\$200</u>	<u>\$1,440</u>			<u>\$1,440</u>	+			<u>\$200</u>
28	-300				}			-300			
Bal.	<u>\$1,340</u>	+	<u>\$200</u>	<u>\$1,440</u>			<u>\$1,440</u>	+	<u>\$300</u>	<u>\$200</u>	<u>\$60</u>
	<u>\$2,980</u>					<u>\$2,980</u>					

18.

DR PAINTING Income Statement Month Ended March 31, 2016		
Revenues:		
Service Revenue		\$ 7,000
Expenses:		
Salaries Expense	\$ 800	
Utilities Expense	200	
Total Expenses		1,000
Net Income		\$ 6,000

DR PAINTING Statement of Owner's Equity Month Ended March 31, 2016		
Richardson, Capital, March 1, 2016	\$	0
Owner contribution		40,000
Net income for the month		6,000
		46,000
Owner withdrawal		(1,500)
Richardson, Capital, March 31, 2016		\$ 44,500

DR PAINTING Balance Sheet March 31, 2016			
Assets		Liabilities	
Cash	\$ 22,300	Accounts Payable	\$ 1,000
Accounts Receivable	1,400		
Office Supplies	1,800	Owner's Equity	
Truck	20,000	Richardson, Capital	44,500
Total Assets	\$ 45,500	Total Liabilities and Owner's Equity	\$ 45,500

19.

$$\begin{aligned}
 \text{Return on assets} &= \text{Net income} / \text{Average total assets} \\
 &= \$5,000 / [(\$76,000 + \$80,250) / 2] \\
 &= 6.4\%
 \end{aligned}$$

Chapter 2

Try It! Solutions

- | | |
|-------|--------|
| 1. E | 11. DR |
| 2. E | 12. DR |
| 3. A | 13. CR |
| 4. E | 14. CR |
| 5. A | 15. CR |
| 6. L | 16. CR |
| 7. L | 17. DR |
| 8. A | 18. CR |
| 9. E | 19. DR |
| 10. E | 20. CR |

21.

Date	Accounts and Explanation	Debit	Credit
Nov. 1	Cash	10,000	
	Martinez, Capital		10,000
	<i>Owner contribution.</i>		
15	Office Supplies	400	
	Accounts Payable		400
	<i>Purchased office supplies on account.</i>		
18	Advertising Expense	150	
	Cash		150
	<i>Paid advertising expense.</i>		
20	Cash	1,000	
	Service Revenue		1,000
	<i>Performed services and received cash.</i>		
28	Martinez, Withdrawals	500	
	Cash		500
	<i>Owner withdrawal.</i>		

22.

COOPER FURNITURE REPAIR Trial Balance December 31, 2016		
Account Title	Balance	
	Debit	Credit
Cash	\$ 7,000	
Equipment	10,000	
Accounts Payable		\$ 2,300
Unearned Revenue		4,500
Cooper, Capital		12,200
Cooper, Withdrawals	3,000	
Service Revenue		8,000
Rent Expense	5,000	
Advertising Expense	1,200	
Utilities Expense	800	
Total	<u>\$ 27,000</u>	<u>\$ 27,000</u>

23.

Total assets = \$7,000 + \$10,000 = \$17,000
 Total liabilities = \$2,300 + \$4,500 = \$6,800
 Debt ratio = Total liabilities / Total assets
 = \$6,800 / \$17,000
 = 0.40
 = 40%

Chapter 3

Try It! Solutions

- Service Revenue = cash received = \$105,000
Expenses = cash paid = \$85,000 - \$10,000 + \$5,000 = \$80,000
- Service Revenue = revenue earned = \$130,000
Expenses = expense incurred = \$85,000
- b
- a
- c
- a. deferral
 b. accrual
 c. deferral
 d. accrual
 e. deferral

7.

Date	Accounts and Explanation	Debit	Credit
(a)	Depreciation Expense—Equipment	1,500	
	Accumulated Depreciation—Equipment		1,500
	<i>To record depreciation on equipment.</i>		
(b)	Advertising Expense	700	
	Advertising Payable		700
	<i>To accrue advertising expense.</i>		
(c)	Supplies Expense	350	
	Office Supplies		350
	<i>To record office supplies used. (\$600–\$250)</i>		
(d)	Accounts Receivable	1,200	
	Rent Revenue		1,200
	<i>To accrue rent revenue.</i>		
(e)	Unearned Revenue	3,000	
	Service Revenue		3,000
	<i>To record service revenue earned that was collected in advance.</i>		

8.

HOOTEN CARPENTRY Adjusted Trial Balance December 31, 2016		
	Balance	
Account Title	Debit	Credit
Cash	\$ 4,025	
Accounts Receivable	660	
Office Supplies	120	
Equipment	10,000	
Accumulated Depreciation—Equipment		\$ 1,000
Land	5,000	
Accounts Payable		225
Utilities Payable		210
Unearned Revenue		300
Hooten, Capital		8,400
Hooten, Withdrawals	500	
Service Revenue		12,000
Salaries Expense	550	
Depreciation Expense—Equipment	800	
Supplies Expense	80	
Utilities Expense	400	
Total	<u>\$ 22,135</u>	<u>\$ 22,135</u>

9. a. income statement: Supplies Expense understated, Net income overstated; balance sheet: Office Supplies overstated, Equity overstated
- b. income statement: Service Revenue understated, Net income understated; balance sheet: Accounts Receivable understated, Equity understated
- c. income statement: Depreciation Expense understated, Net income overstated; balance sheet: Accumulated Depreciation understated making total assets overstated, Equity overstated
- d. income statement: Insurance Expense understated, Net income overstated; balance sheet: Prepaid Insurance overstated, Equity overstated
- e. income statement: Salaries Expense understated, Net income overstated; balance sheet: Salaries Payable understated, Equity overstated
- f. income statement: Service Revenue understated, Net income understated; balance sheet: Unearned Revenue overstated, Equity understated

10.

A	B	C	D	E	F	G	H	I	J	K	L	M
1	SAM'S DELIVERY SERVICE											
2	Worksheet											
3	December 31, 2016											
4												
5	Account Names	Unadjusted Trial Balance		Adjustments		Adjusted Trial Balance		Income Statement		Balance Sheet		
6		Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	
7	Cash	\$ 6,500				\$ 6,500						
8	Accounts Receivable	800		(g) \$ 225		1,025						
9	Office Supplies	250			\$ 80 (b)	170						
10	Prepaid Rent	1,000			800 (a)	200						
11	Delivery Van	23,000				23,000						
12	Accumulated Depreciation—Delivery Van				750 (c)		\$ 750					
13	Equipment	15,000				15,000						
14	Accumulated Depreciation—Equipment				300 (d)		300					
15	Accounts Payable		\$ 800				800					
16	Utilities Payable		230				230					
17	Salaries Payable				875 (f)		875					
18	Unearned Revenue		400 (e)	130			270					
19	Sam, Capital		37,800				37,800					
20	Sam, Withdrawals	8,000				8,000						
21	Delivery Revenue		23,000		355 (e, g)		23,355					
22	Rent Expense	3,000		(a) 800		3,800						
23	Salaries Expense	4,500		(f) 875		5,375						
24	Supplies Expense			(b) 80		80						
25	Utilities Expense	180				180						
26	Depreciation Expense—Delivery Van			(c) 750		750						
27	Depreciation Expense—Equipment			(d) 300		300						
28	Total	\$ 62,230	\$ 62,230	\$ 3,160	\$ 3,160	\$ 64,380	\$ 64,380					
29												

11A.

Date	Accounts and Explanation	Debit	Credit
	Supplies Expense	1,000	
	Cash		1,000
	<i>To record the purchase of printing supplies.</i>		
	Printing Supplies	300	
	Supplies Expense		300
	<i>To record printing supplies remaining.</i>		

Chapter 4

Try It! Solutions

1. Intangible assets
2. Long-term liabilities
3. Plant assets
4. Current assets
5. Current liabilities
6. Long-term investments
7. Plant assets
8. Income statement, CR
9. Balance sheet, CR
10. Balance sheet, DR
11. Income statement, DR
12. Balance sheet, DR
13. Balance sheet, CR
- 14.

Date	Accounts and Explanation	Debit	Credit
Dec. 31	Service Revenue	1,600	
	Income Summary		1,600
	<i>To close revenue.</i>		
31	Income Summary	2,300	
	Depreciation Expense—Equipment		300
	Salaries Expense		800
	Rent Expense		500
	Utilities Expense		600
	Supplies Expense		100
	<i>To close expenses.</i>		
31	Benson, Capital	700	
	Income Summary		700
	<i>To close Income Summary.</i>		
31	Benson, Capital	2,100	
	Benson, Withdrawals		2,100
	<i>To close withdrawals.</i>		

15. **Benson, Capital**

		35,700	Adj. Bal.
Clos. 3	700		
Clos. 4	2,100		
		32,900	Bal.

16. No
17. No
18. Yes
19. No
20. Yes
21. b, h, i, d, f, e, g, c, a, j

22.

$$\begin{aligned}
 \text{Current ratio} &= \text{Total current assets} / \text{Total current liabilities} \\
 &= (\$4,000 + \$3,200 + \$1,900 + \$3,000) / \$5,400 \\
 &= \$12,100 / \$5,400 = 2.24 \text{ (rounded)}
 \end{aligned}$$

23A.

Date	Accounts and Explanation	Debit	Credit
Dec. 31	Salaries Expense	4,000	
	Salaries Payable		4,000
	<i>To accrue salaries expense</i>		

24A.

Date	Accounts and Explanation	Debit	Credit
Jan. 1	Salaries Payable	4,000	
	Salaries Expense		4,000
	<i>To reverse the salaries adjusting entry.</i>		

25A.

Date	Accounts and Explanation	Debit	Credit
Jan. 10	Salaries Expense	6,000	
	Cash		6,000
	<i>To record payment of salaries.</i>		

Chapter 5

Try It! Solutions

- | | |
|------|------|
| 1. d | 4. a |
| 2. f | 5. b |
| 3. e | 6. c |

7.

Date	Accounts and Explanation	Debit	Credit
Jul. 1	Merchandise Inventory	20,500	
	Accounts Payable		20,500
	<i>Purchased inventory on account.</i>		
3	Accounts Payable	4,000	
	Merchandise Inventory		4,000
	<i>Returned inventory to seller (vendor).</i>		
9	Accounts Payable (\$20,500 – \$4,000)	16,500	
	Cash (\$16,500 – \$330)		16,170
	Merchandise Inventory (\$16,500 × 0.02)		330
	<i>Paid within discount period net of return.</i>		

8.

Date	Accounts and Explanation	Debit	Credit
Jul. 12	Accounts Receivable	8,000	
	Sales Revenue		8,000
	<i>Sale on account.</i>		
12	Cost of Goods Sold	4,800	
	Merchandise Inventory		4,800
	<i>Recorded the cost of goods sold.</i>		
21	Sales Returns and Allowances	1,000	
	Accounts Receivable		1,000
	<i>Received returned goods.</i>		
21	Merchandise Inventory	600	
	Cost of Goods Sold		600
	<i>Placed goods back in inventory.</i>		
26	Cash (\$7,000 – \$210)	6,790	
	Sales Discounts (\$7,000 × 0.03)	210	
	Accounts Receivable (\$8,000 – \$1,000)		7,000
	<i>Cash collection within discount period net of return.</i>		

9.

Date	Accounts and Explanation	Debit	Credit
Dec. 31	Cost of Goods Sold	500	
	Merchandise Inventory		500
	<i>Adjustment for inventory shrinkage.</i>		

10.

CAPITAL CITY MOTORCYCLE Income Statement Year Ended December 31, 2016	
Sales Revenue	\$ 120,000
Less: Sales Returns and Allowances	4,500
Sales Discounts	2,000
Net Sales Revenue	\$ 113,500
Cost of Goods Sold	85,000
Gross Profit	28,500
Operating Expenses:	
Selling Expenses	10,500
Administrative Expenses	8,000
Total Operating Expenses	18,500
Operating Income	10,000
Other Revenues and (Expenses):	
Interest Revenue	1,000
Total Other Revenues and (Expenses)	1,000
Net Income	\$ 11,000

11.

$$\begin{aligned}
 \text{Gross profit percentage} &= \text{Gross profit} / \text{Net sales revenue} \\
 &= (\$120,000 - \$4,500 - \$2,000 - \$85,000) / (\$120,000 - \$4,500 - \$2,000) \\
 &= 0.251 \\
 &= 25.1\%
 \end{aligned}$$

12A.

Date	Accounts and Explanation	Debit	Credit
Jul. 1	Purchases	20,500	
	Accounts Payable		20,500
	<i>Purchased inventory on account.</i>		
3	Accounts Payable	4,000	
	Purchase Returns and Allowances		4,000
	<i>Returned inventory to seller (vendor).</i>		
9	Accounts Payable (\$20,500 – \$4,000)	16,500	
	Cash (\$16,500 – \$330)		16,170
	Purchase Discounts (\$16,500 × 0.02)		330
	<i>Paid within discount period net of return.</i>		
12	Accounts Receivable	8,000	
	Sales Revenue		8,000
	<i>Sale on account.</i>		
21	Sales Returns and Allowances	1,000	
	Accounts Receivable		1,000
	<i>Received returned goods.</i>		
26	Cash (\$7,000 – \$210)	6,790	
	Sales Discounts (\$7,000 × 0.03)	210	
	Accounts Receivable (\$8,000 – \$1,000)		7,000
	<i>Cash collection within discount period net of return.</i>		

Chapter 6

Try It! Solutions

1. a
2. d
3. b
4. c

5A.

Date	Purchases			Cost of Goods Sold			Inventory on Hand		
	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Aug. 1							10 units	× \$ 15	= \$ 150 } \$ 150
3				3 units	× \$ 15	= \$ 45 } \$ 45	7 units	× \$ 15	= \$ 105 } \$ 105
12	8 units	× \$ 18	= \$ 144				7 units	× \$ 15	= \$ 105 } \$ 249
							8 units	× \$ 18	= \$ 144 }
15				4 units	× \$ 15	= \$ 60 } \$ 150	3 units	× \$ 15	= \$ 45 }
				5 units	× \$ 18	= \$ 90 }	3 units	× \$ 18	= \$ 54 }
20	4 units	× \$ 20	= \$ 80				3 units	× \$ 15	= \$ 45 }
							3 units	× \$ 18	= \$ 54 }
							4 units	× \$ 20	= \$ 80 }
28				2 units	× \$ 18	= \$ 36 } \$ 96	3 units	× \$ 15	= \$ 45 }
				3 units	× \$ 20	= \$ 60 }	1 unit	× \$ 18	= \$ 18 }
							1 unit	× \$ 20	= \$ 20 }
Totals	12 units		<u>\$ 224</u>	17 units		<u>\$ 291</u>	5 units		<u>\$ 83</u>

5B.

Date	Purchases			Cost of Goods Sold			Inventory on Hand		
	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Aug. 1							10 units	× \$ 15	= \$ 150 } \$ 150
3				3 units	× \$ 15	= \$ 45 } \$ 45	7 units	× \$ 15	= \$ 105 } \$ 105
12	8 units	× \$ 18	= \$ 144				7 units	× \$ 15	= \$ 105 } \$ 249
							8 units	× \$ 18	= \$ 144 }
15				7 units	× \$ 15	= \$ 105 } \$ 141	6 units	× \$ 18	= \$ 108 }
				2 units	× \$ 18	= \$ 36 }			
20	4 units	× \$ 20	= \$ 80				6 units	× \$ 18	= \$ 108 }
							4 units	× \$ 20	= \$ 80 }
28				5 units	× \$ 18	= \$ 90 } \$ 90	1 unit	× \$ 18	= \$ 18 }
							4 units	× \$ 20	= \$ 80 }
Totals	12 units		<u>\$ 224</u>	17 units		<u>\$ 276</u>	5 units		<u>\$ 98</u>

5C.

Date	Purchases			Cost of Goods Sold			Inventory on Hand		
	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Aug. 1							10 units	× \$ 15	= \$ 150 } \$ 150
3				3 units	× \$ 15	= \$ 45 } \$ 45	7 units	× \$ 15	= \$ 105 } \$ 105
12	8 units	× \$ 18	= \$ 144				7 units	× \$ 15	= \$ 105 } \$ 249
							8 units	× \$ 18	= \$ 144 }
15				8 units	× \$ 18	= \$ 144 } \$ 159	6 units	× \$ 15	= \$ 90 } \$ 90
				1 unit	× \$ 15	= \$ 15 }			
20	4 units	× \$ 20	= \$ 80				6 units	× \$ 15	= \$ 90 } \$ 170
							4 units	× \$ 20	= \$ 80 }
28				4 units	× \$ 20	= \$ 80 } \$ 95	5 units	× \$ 15	= \$ 75
				1 unit	× \$ 15	= \$ 15 }			
Totals	12 units		<u>\$ 224</u>	17 units		<u>\$ 299</u>	5 units		<u>\$ 75</u>

5D.

Date	Purchases			Cost of Goods Sold			Inventory on Hand		
	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Aug. 1							10 units	× \$ 15	= \$ 150 } \$ 150 / 10 units = \$ 15
3				3 units	× \$ 15	= \$ 45	7 units	× \$ 15	= \$ 105
12	8 units	× \$ 18	= \$ 144				15 units	× \$ 16.60	= \$ 249 } \$ 249 / 15 units = \$ 16.60
15				9 units	× \$ 16.60	= \$ 149	6 units	× \$ 16.60	= \$ 100
20	4 units	× \$ 20	= \$ 80				10 units	× \$ 18	= \$ 180 } \$ 180 / 10 units = \$ 18
28				5 units	× \$ 18	= \$ 90	5 units	× \$ 18	= \$ 90
Totals	12 units		<u>\$ 224</u>	17 units		<u>\$ 284</u>	5 units		<u>\$ 90</u>

6. Antelope Motors should select the LIFO inventory costing method.
7. T. J. Jackson should report merchandise inventory at the lower-of-cost-or-market, which would be \$750. The adjusting entry required would be:

Date	Accounts and Explanation	Debit	Credit
Dec. 31	Cost of Goods Sold	550	
	Merchandise Inventory (\$1,300 – \$750)		550
	<i>To write merchandise inventory down to market value.</i>		

8.

Sales Revenue	\$ 48,000
Cost of Goods Sold:	
Beginning Merchandise Inventory	\$ 3,360
Net Cost of Purchases	21,280
Cost of Goods Available for Sale	24,640
Less: Ending Merchandise Inventory (\$4,960 – \$1,920)	3,040
Cost of Goods Sold	21,600
Gross Profit	\$ 26,400

9.

$$\begin{aligned}\text{Inventory turnover} &= \text{Cost of goods sold} / \text{Average merchandise inventory} \\ &= \$484,000 / \$100,000 \\ &= 4.84 \text{ times per year}\end{aligned}$$

$$\begin{aligned}\text{Average merchandise inventory} &= (\text{Beginning merchandise inventory} + \text{Ending merchandise inventory}) / 2 \\ &= (\$88,800 + \$111,200) / 2 \\ &= \$100,000\end{aligned}$$

$$\begin{aligned}\text{Days' sales in inventory} &= 365 \text{ days} / \text{Inventory turnover} \\ &= 365 \text{ days} / 4.84 \\ &= 75.4 \text{ days}\end{aligned}$$

10A.

a.

Beginning merchandise inventory (10 units × \$15)	\$ 150
Net cost of purchases (8 units × \$18) + (4 units × \$20)	224
Cost of goods available for sale	374
Less: Ending merchandise inventory (1 × \$18) + (4 × \$20)	98
Cost of goods sold	\$ 276

b.

Beginning merchandise inventory (10 units × \$15)	\$ 150
Net cost of purchases (8 units × \$18) + (4 units × \$20)	224
Cost of goods available for sale	374
Less: Ending merchandise inventory (5 × \$15)	75
Cost of goods sold	\$ 299

- c. $\text{Cost of goods available for sale} / \text{Number of units available} = \$374 / 22 \text{ units}$
 $= \$17$

Beginning merchandise inventory (10 units \times \$15)	\$ 150
Net purchases (8 units \times \$18) + (4 units \times \$20)	224
Cost of goods available for sale	<u>374</u>
Less: Ending merchandise inventory (5 \times \$17)	85
Cost of goods sold	<u>\$ 289</u>

Chapter 7

Try It! Solutions

- c
- e
- b
- a
- d
- Evenson Co. should use the sales journal. The \$300 should be recorded in the Accounts Receivable DR, Sales Revenue CR column.
- Fiscella Co. should use the cash payments journal. The \$2,000 should be recorded in the Cash CR column and the Other Accounts DR column. Rent Expense should be listed in the Account Debited column.
- Software
 - Network
 - Hardware

Chapter 8

Try It! Solutions

- d
- a
- c
- e
- b
- mailroom employee;
 - cashier;
 - accounting department;
 - controller
- invoice;
 - check;
 - purchase order;
 - receiving report

8.

Date	Accounts and Explanation	Debit	Credit
May 1	Petty Cash	200	
	Cash		200
	<i>To open the petty cash fund.</i>		
31	Office Supplies	81	
	Delivery Expense	36	
	Postage Expense	54	
	Miscellaneous Expense	9	
	Cash Short & Over	2	
	Cash		182
	<i>To replenish the petty cash fund.</i>		

9. c

12. d

10. d

13. b

11. a

14. Cash ratio = (Cash + Cash equivalents) / Total current liabilities
 = \$60,000 / \$75,000
 = 0.80

Chapter 9

Try It! Solutions

1.

Date	Accounts and Explanation	Debit	Credit
Jun. 30	Cash	11,760	
	Credit Card Expense (\$12,000 × 0.02)	240	
	Sales Revenue		12,000
	<i>Recorded credit card sales, net of fee.</i>		

2.

Date	Accounts and Explanation	Debit	Credit
Jun. 30	Cash	12,000	
	Sales Revenue		12,000
	<i>Recorded credit card sales.</i>		

3.

Date	Accounts and Explanation	Debit	Credit
Jul. 18	Bad Debts Expense	6,800	
	Accounts Receivable—Jennings		6,800
	<i>Wrote off an uncollectible account.</i>		

4.

Date	Accounts and Explanation	Debit	Credit
Aug. 24	Accounts Receivable—Jennings	6,800	
	Bad Debts Expense		6,800
	<i>Reinstated previously written off account.</i>		
24	Cash	6,800	
	Accounts Receivable—Jennings		6,800
	<i>Collected cash on account.</i>		

5.

Date	Accounts and Explanation	Debit	Credit
Sep. 2	Allowance for Bad Debts	14,000	
	Accounts Receivable—Mraz		14,000
	<i>Wrote off an uncollectible account.</i>		

6.

Date	Accounts and Explanation	Debit	Credit
Dec. 12	Accounts Receivable—Mraz	14,000	
	Allowance for Bad Debts		14,000
	<i>Reinstated previously written off account.</i>		
12	Cash	14,000	
	Accounts Receivable—Mraz		14,000
	<i>Collected cash on account.</i>		

7.

Date	Accounts and Explanation	Debit	Credit
Dec. 31	Bad Debts Expense	800	
	Allowance for Bad Debts		800
	<i>Recorded bad debts expense for the period.</i>		

8.

Date	Accounts and Explanation	Debit	Credit
Aug. 1	Notes Receivable—King	80,000	
	Cash		80,000
	<i>Accepted note in exchange for cash.</i>		

9.

Date	Accounts and Explanation	Debit	Credit
Oct. 30	Cash	81,000	
	Notes Receivable—King		80,000
	Interest Revenue ($\$80,000 \times 0.05 \times 90/360$)		1,000
	<i>Collected note receivable plus interest.</i>		

10a.

Acid-test ratio = (Cash including cash equivalents + Short-term investments + Net current receivables) / Total current liabilities
 = $(\$104,000 + \$56,000 + \$108,000) / (\$128,000 + \$72,000) = 1.34$

b.

Accounts receivable turnover ratio = Net credit sales / Average net accounts receivable
 = $\$1,168,000 / ((\$68,000 + \$108,000) / 2) = 13.3$ times (rounded)

c.

Days' sales in receivables = 365 days / Accounts receivable turnover ratio
 = $365 \text{ days} / 13.3 = 27.4$ days (rounded)

Chapter 10

Try It! Solutions

1.

Asset	Market Value	Percentage of Total Value	× Total Purchase Price	= Cost of Each Asset
Land	\$ 22,000	$\$22,000 / \$220,000 = 10\%$	× \$200,000	= \$ 20,000
Building	187,000	$\$187,000 / \$220,000 = 85\%$	× \$200,000	= 170,000
Equipment	11,000	$\$11,000 / \$220,000 = 5\%$	× \$200,000	= 10,000
Total	<u>\$ 220,000</u>	<u>100%</u>		<u>\$ 200,000</u>

Date	Accounts and Explanation	Debit	Credit
	Land	20,000	
	Building	170,000	
	Equipment	10,000	
	Cash		200,000
	<i>To record purchase of land, building, and equipment with cash.</i>		

2. a.
$$\text{Straight-line depreciation} = (\$140,000 - \$2,000) / 6 \text{ years}$$
$$= \$23,000$$

b.
$$\text{Depreciation per unit} = (\$140,000 - \$2,000) / 1,000,000 \text{ lifts}$$
$$= \$0.14 \text{ per lift (rounded)}$$
$$\text{Units-of-production depreciation} = \$0.14 \text{ per lift} \times 80,000 \text{ lifts}$$
$$= \$11,200$$

c.
$$\text{Double-declining-balance depreciation} = (\$140,000 - \$0) \times 2 \times (1 / 6)$$
$$= \$46,667 \text{ (rounded)}$$

3.
$$\text{Accumulated depreciation} = [(\$20,000 - \$2,000) / 4 \text{ years}] \times 3 \text{ years}$$
$$= \$13,500$$

Date	Accounts and Explanation	Debit	Credit
Dec. 31	Cash	8,000	
	Accumulated Depreciation—Equipment	13,500	
	Gain on Disposal		1,500
	Equipment		20,000
	<i>Sold equipment for cash.</i>		

4.
$$\text{Depletion per unit} = (\$80,000,000 - \$0) / 100,000,000 \text{ barrels}$$
$$= \$0.80 \text{ per barrel}$$
$$\text{Depletion expense} = \$0.80 \text{ per barrel} \times 20,000,000 \text{ barrels}$$
$$= \$16,000,000$$

Date	Accounts and Explanation	Debit	Credit
Dec. 31	Depletion Expense—Oil Reserves	16,000,000	
	Accumulated Depletion—Oil Reserves		16,000,000
	<i>To record depletion.</i>		

5.
$$\text{Amortization expense} = (\$40,000 - \$0) / 8 \text{ years}$$
$$= \$5,000$$

Date	Accounts and Explanation	Debit	Credit
Dec. 31	Amortization Expense—Patent	5,000	
	Patent		5,000
	<i>To record amortization of patent.</i>		

6.
$$\text{Asset turnover ratio} = \$240,000 / [(\$140,000 + \$160,000) / 2]$$

$$= 1.6$$

7A.

Date	Accounts and Explanation	Debit	Credit
	Equipment (new)	5,000	
	Accumulated Depreciation—Equipment	8,000	
	Loss on Disposal	1,000	
	Equipment (old)		10,000
	Cash		4,000
	<i>Exchanged old equipment and cash for new equipment.</i>		

Chapter 11

Try It! Solutions

1.

Date	Accounts and Explanation	Debit	Credit
Aug. 10	Accounts Receivable	4,160	
	Sales Revenue		4,000
	Sales Tax Payable (\$4,000 × 0.04)		160
	<i>To record sales of merchandise inventory and the related sales tax.</i>		

2.

Date	Accounts and Explanation	Debit	Credit
Sep. 30	Sales Tax Payable	500	
	Cash		500
	<i>To record cash payment for sales tax payable.</i>		

3.

$$\text{OASDI: } \$4,000 \times 0.062 = \$248$$

$$\text{Medicare: } \$4,000 \times 0.0145 = \$58$$

$$\text{Income Taxes: } \$4,000 \times 0.15 = \$600$$

Date	Accounts and Explanation	Debit	Credit
Aug. 31	Salaries Expense	4,000	
	FICA—OASDI Taxes Payable		248
	FICA—Medicare Taxes Payable		58
	Employee Income Taxes Payable		600
	Salaries Payable		3,094
	<i>To record salaries expense and payroll withholdings.</i>		

4.

Date	Accounts and Explanation	Debit	Credit
	Warranty Expense ($\$200,000 \times 0.06$)	12,000	
	Estimated Warranty Payable		12,000
	<i>To accrue warranty payable.</i>		

5. a 6. c

7. c 8. b

9.

$$\begin{aligned}
 \text{Times-interest-earned ratio} &= (\text{Net income} + \text{Income tax expense} + \text{Interest expense}) / \text{Interest expense} \\
 &= (\$19,300 + \$5,800 + \$900) / \$900 \\
 &= 28.89
 \end{aligned}$$

Chapter 12

Try It! Solutions

1. b

2. e

3. a

4. c

5. f

6. d

7.

Date	Accounts and Explanation	Debit	Credit
	Cash	1,000,000	
	Land	10,000,000	
	Lewis, Capital		11,000,000
	<i>To record Lewis's contribution.</i>		
	Cash	3,000,000	
	Equipment	800,000	
	Young, Capital		3,800,000
	<i>To record Young's contribution.</i>		

8.

Date	Accounts and Explanation	Debit	Credit
Dec. 31	Income Summary	100,000	
	Scott, Capital ($\$100,000 \times 1/5$)		20,000
	Hill, Capital ($\$100,000 \times 1/5$)		20,000
	Carter, Capital ($\$100,000 \times 3/5$)		60,000
	<i>To close Income Summary.</i>		

9.

Partnership capital before admission of new partner ($\$40,000 + \$20,000$)	\$ 60,000
Contribution of new partner	30,000
Partnership capital after admission of new partner	<u>\$ 90,000</u>
Capital of new partner ($\$90,000 \times 25\%$)	<u>\$ 22,500</u>
Contribution of new partner	\$ 30,000
Capital of new partner	(22,500)
Bonus to <i>existing</i> partners	<u>\$ 7,500</u>

Date	Accounts and Explanation	Debit	Credit
	Cash	30,000	
	Rivera, Capital		22,500
	Parker, Capital ($\$7,500 \times 1/2$)		3,750
	Flores, Capital ($\$7,500 \times 1/2$)		3,750
	<i>To record Rivera's contribution and bonus to existing partners.</i>		

10.

Date	Accounts and Explanation	Debit	Credit
	Kelly, Capital	100,000	
	Cooper, Capital ($(\$120,000 - \$100,000) \times 1/2$)	10,000	
	Richardson, Capital ($(\$120,000 - \$100,000) \times 1/2$)	10,000	
	Cash		120,000
	<i>To record withdrawal of Kelly from the partnership.</i>		

11.

Date	Accounts and Explanation	Debit	Credit
	Bennett, Capital	20,000	
	Cruz, Capital	30,000	
	Cash		50,000
	<i>To distribute remaining cash based on partners' capital balances.</i>		

Chapter 13

Try It! Solutions

1. e
2. c
3. a
4. b
5. d

6.

Date	Accounts and Explanation	Debit	Credit
	Cash ($\$8$ per share \times 10,000 shares)	80,000	
	Common Stock—\$1 Par Value ($\1 per share \times 10,000 shares)		10,000
	Paid-In Capital in Excess of Par—Common ($\$7$ per share \times 10,000 shares)		70,000
	<i>Issued common stock at a premium.</i>		

7.

Date	Accounts and Explanation	Debit	Credit
Jan. 3	Treasury Stock—Common ($\$8$ per share \times 2,000 shares)	16,000	
	Cash		16,000
	<i>Purchased treasury stock.</i>		
30	Cash ($\$10$ per share \times 1,200 shares)	12,000	
	Treasury Stock—Common ($\$8$ per share \times 1,200 shares)		9,600
	Paid-In Capital from Treasury Stock Transactions ($\$2$ per share \times 1,200 shares)		2,400
	<i>Sold treasury stock above cost.</i>		

8.

Date	Accounts and Explanation	Debit	Credit
Aug. 1	Cash Dividends ($\$1.50$ per share \times 20,000 shares)	30,000	
	Dividends Payable—Common		30,000
	<i>Declared a cash dividend.</i>		
31	Dividends Payable—Common	30,000	
	Cash		30,000
	<i>Payment of cash dividend.</i>		

9.

SJOSTROM, INC. Statement of Retained Earnings Year Ended December 31, 2016	
Retained Earnings, January 1, 2016	\$ 300,000
Net income for the year	200,000
	500,000
Dividends declared	(140,000)
Retained Earnings, December 31, 2016	\$ 360,000

10.

Earnings per share = (Net income – Preferred dividends) / Weighted average number of common shares outstanding
 = (\$80,000 – \$2,000) / [(10,000 shares + 14,000 shares) / 2]
 = \$6.50 / share

11.

Price/earnings ratio = Market price per share of common stock / Earnings per share
 = \$40 per share / \$6.50 per share
 = 6.15

12.

Rate of return on stockholders' equity = (Net income – Preferred dividends) / Average common stockholders' equity
 = (\$80,000 – \$2,000) / [(\$340,000 – \$20,000) + (\$310,000 – \$20,000)] / 2
 = 0.256
 = 25.6%

Chapter 14

Try It! Solutions

1.

Date	Accounts and Explanation	Debit	Credit
2016			
Jan. 1	Cash	80,000	
	Notes Payable		80,000
	<i>Received cash in exchange for a 4-year, 4% note.</i>		

2.

Date	Accounts and Explanation	Debit	Credit
2016			
Dec. 31	Notes Payable	20,000	
	Interest Expense (\$80,000 × 0.04 × 1 year)	3,200	
	Cash		23,200
	<i>Paid principal and interest payment.</i>		

3. Premium
4. Face value
5. Discount

6.

Date	Accounts and Explanation	Debit	Credit
2016			
Jan. 1	Cash ($\$100,000 \times 0.98$)	98,000	
	Discount on Bonds Payable ($\$100,000 - \$98,000$)	2,000	
	Bonds Payable		100,000
	<i>Issued bonds at a discount.</i>		

7.

Date	Accounts and Explanation	Debit	Credit
2016			
Jul. 1	Interest Expense ($\$2,000 + \100)	2,100	
	Discount on Bonds Payable ($\$2,000 \times 1/20$)		100
	Cash ($\$100,000 \times 0.04 \times 6/12$)		2,000
	<i>Paid semiannual interest and amortized discount.</i>		

8.

Date	Accounts and Explanation	Debit	Credit
2016			
Jan. 1	Cash ($\$100,000 \times 1.06$)	106,000	
	Premium on Bonds Payable ($\$106,000 - \$100,000$)		6,000
	Bonds Payable		100,000
	<i>Issued bonds at a premium.</i>		
Jul. 1	Interest Expense ($\$2,000 - \300)	1,700	
	Premium on Bonds Payable ($\$6,000 \times 1/20$)	300	
	Cash ($\$100,000 \times 0.04 \times 6/12$)		2,000
	<i>Paid semiannual interest and amortized premium.</i>		

9.

Date	Accounts and Explanation	Debit	Credit
2026			
Jan. 1	Bonds Payable	400,000	
	Cash		400,000
	<i>Retired bonds payable at maturity.</i>		

10.

WEAVER CORPORATION Balance Sheet (Partial) December 31, 2016			
Liabilities			
Current Liabilities:			
Accounts Payable		\$ 20,400	
Salaries Payable		1,680	
Estimated Warranty Payable		1,080	
Interest Payable		720	
Sales Tax Payable		480	
Total Current Liabilities			\$ 24,360
Long-term Liabilities:			
Notes Payable		75,000	
Bonds Payable	\$ 195,000		
Plus: Premium on Bonds Payable	5,850	200,850	
Total Long-term Liabilities			275,850
Total Liabilities			\$ 300,210

11.

$$\begin{aligned}
 \text{Debt to equity ratio} &= \text{Total liabilities} / \text{Total equity} \\
 &= \$20,000 / \$40,000 \\
 &= 0.50
 \end{aligned}$$

12A.

Present value of principal:

$$\begin{aligned}
 \text{Present value} &= \text{Future value} \times \text{PV factor for } i = 4\%, n = 20 \\
 &= \$200,000 \times 0.456 \\
 &= \$91,200
 \end{aligned}$$

Present value of stated interest:

$$\begin{aligned}
 \text{Present value} &= \text{Amount of each cash flow} \times \text{Annuity PV factor for } i = 4\%, n = 20 \\
 &= (\$200,000 \times 0.06 \times 6/12) \times 13.590 \\
 &= \$81,540
 \end{aligned}$$

Present value of bonds payable:

$$\begin{aligned}
 \text{Present value} &= \text{PV of principal} + \text{PV of stated interest} \\
 &= \$91,200 + \$81,540 \\
 &= \$172,740
 \end{aligned}$$

13B.

	Cash Paid	Interest Expense	Premium Amortized	Carrying Amount
01/01/2016				\$ 217,040
06/30/2016	\$ 8,000	\$ 6,511	\$ 1,489	215,551
12/31/2016	8,000	6,467	1,533	214,018

Calculations:**6/30/2016:**

$$\$200,000 \times 0.08 \times 6/12 = \$8,000$$

$$\$217,040 \times 0.06 \times 6/12 = \$6,511$$

$$\$8,000 - \$6,511 = \$1,489$$

$$\$217,040 - \$1,489 = \$215,551$$

12/31/2016:

$$\$200,000 \times 0.08 \times 6/12 = \$8,000$$

$$\$215,551 \times 0.06 \times 6/12 = \$6,467$$

$$\$8,000 - \$6,467 = \$1,533$$

$$\$215,551 - \$1,533 = \$214,018$$

Chapter 15**Try It! Solutions**

1. c
2. a
3. e
4. b
5. d
- 6.

Date	Accounts and Explanation	Debit	Credit
2016			
Jan. 1	Long-term Investments—Held-to-Maturity	20,000	
	Cash		20,000
	<i>Purchased investment in bonds.</i>		
Jun. 30	Cash	400	
	Interest Revenue ($\$20,000 \times 0.04 \times 6/12$)		400
	<i>Received cash interest.</i>		
Dec. 31	Cash	400	
	Interest Revenue ($\$20,000 \times 0.04 \times 6/12$)		400
	<i>Received cash interest.</i>		

7.

Date	Accounts and Explanation	Debit	Credit
2016			
May 15	Long-term Investments—Available-for-Sale	8,000	
	Cash		8,000
	<i>Purchased investment in stock.</i>		
Nov. 15	Cash	200	
	Dividend Revenue		200
	<i>Received cash dividend.</i>		
Dec. 10	Cash	7,500	
	Loss on Disposal	500	
	Long-term Investments—Available-for-Sale		8,000
	<i>Disposed of investment in stock.</i>		

8.

Date	Accounts and Explanation	Debit	Credit
2016			
Dec. 31	Unrealized Holding Loss—Available-for-Sale [500 shares × (\$5 – \$4)]	500	
	Fair Value Adjustment—Available-for-Sale		500
	<i>Adjusted available-for-sale investments to market value.</i>		

9.

$$\begin{aligned}
 \text{Rate of return on total assets} &= (\text{Net income} + \text{Interest expense}) / \text{Average total assets} \\
 &= (\$850 + \$150) / [(\$10,000 + \$15,000) / 2] \\
 &= 0.08 \\
 &= 8\%
 \end{aligned}$$

Chapter 16

Try It! Solutions

1. I
2. O
3. I
4. N
5. F

6.

OWL, INC. Statement of Cash Flows Year Ended December 31, 2016		
Cash Flows from Operating Activities:		
Net Income		\$ 30,000
Adjustments to Reconcile Net Income to Net Cash Provided by Operating Activities:		
Depreciation Expense	\$ 12,000	
Decrease in Current Assets Other than Cash	8,000	
Increase in Current Liabilities	10,000	30,000
Net Cash Provided by Operating Activities		60,000
Cash Flows from Investing Activities:		
Cash Payment for Acquisition of Land	(25,000)	
Cash Receipt from Disposal of Equipment	20,000	
Net Cash Used for Investing Activities		(5,000)
Cash Flows from Financing Activities:		
Cash Receipt from Issuance of Common Stock	12,000	
Cash Payment of Dividends	(4,000)	
Net Cash Provided by Financing Activities		8,000
Net Increase (Decrease) in Cash		63,000
Cash Balance, December 31, 2015		12,000
Cash Balance, December 31, 2016		\$ 75,000

7.

Free cash flow = Net cash provided by operating activities – Cash payments planned for investment in long-term assets – Cash dividends
 = \$100,000 – \$20,000 – \$2,000
 = \$78,000

8A.

BIG ISLAND, INC. Statement of Cash Flows (Partial) Year Ended December 31, 2016		
Cash Flows from Operating Activities:		
Receipts:		
Collections from Customers	\$ 120,000	
Interest Received	2,000	
Total Cash Receipts		\$ 122,000
Payments:		
To Suppliers	(65,000)	
To Employees	(80,000)	
For Income Tax	(10,000)	
Total Cash Payments		(155,000)
Net Cash Used by Operating Activities		\$ (33,000)

9B.

	A	B	C	D	E	F	G
1	MUENCH, INC.						
2	Spreadsheet for Statement of Cash Flows						
3	Year Ended December 31, 2016						
4							
5	Panel A—Balance Sheet:	Balance 12/31/2015	Transaction Analysis			Balance 12/31/2016	
6				DEBIT	CREDIT		
7	Cash	\$ 16,000	(h)	4,000			\$ 20,000
8	Accounts Receivable	3,250	(c)	1,750			5,000
9	Plant Assets	14,000	(e)	1,000			15,000
10	Accumulated Depreciation	(100)			100	(b)	(200)
11	Total Assets	\$ 33,150					\$ 39,800
12							
13	Accounts Payable	5,000	(d)	1,500			3,500
14							
15	Common Stock, no par	24,150			5,850	(f)	30,000
16	Retained Earnings	4,000	(g)	5,700	8,000	(a)	6,300
17	Total Liabilities and Stockholders' Equity	\$ 33,150		\$ 13,950	\$ 13,950		\$ 39,800
18							
19	Panel B—Statement of Cash Flows:						
20	Cash Flows from Operating Activities:						
21	Net Income		(a)	8,000			
22	Adjustments to Reconcile Net Income to Net Cash Provided by Operating Activities:						
23	Depreciation Expense—Plant Assets		(b)	100			
24	Increase in Accounts Receivable				1,750	(c)	
25	Decrease in Accounts Payable				1,500	(d)	
26	Net Cash Provided by Operating Activities						
27	Cash Flows from Investing Activities:						
28	Cash Payment for Acquisition of Plant Assets				1,000	(e)	
29	Net Cash Used for Investing Activities						
30	Cash Flows from Financing Activities:						
31	Cash Receipt from Issuance of Common Stock		(f)	5,850			
32	Cash Payment of Dividends				5,700	(g)	
33	Net Cash Provided by Financing Activities						
34	Net Increase (Decrease) in Cash				4,000	(h)	
35	Total			\$ 13,950	\$ 13,950		
36							

Chapter 17

Try It! Solutions

1. d
2. b
3. a
4. c
5.

	2017	2016	Increase (Decrease)	
			Amount	Percentage
Revenue	\$ 10,000	\$ 8,000	\$ 2,000	25%
Cost of Goods Sold	4,500	3,000	1,500	50
Gross Profit	\$ 5,500	\$ 5,000	\$ 500	10%

6.

	2016	Percent of Total	2015	Percent of Total
Cash and Receivables	\$ 35,000	25.9%	\$ 40,000	34.8%
Merchandise Inventory	20,000	14.8	15,000	13.0
Property, Plant, and Equipment, Net	80,000	59.3	60,000	52.2
Total Assets	\$ 135,000	100.0%	\$ 115,000	100.0%

7.

$$\begin{aligned}
 \text{Current ratio} &= \text{Total current assets} / \text{Total current liabilities} \\
 &= \$68,800 / \$53,200 \\
 &= 1.29
 \end{aligned}$$

8.

$$\begin{aligned}
 \text{Acid-test ratio} &= (\text{Cash} + \text{Short-term investments} + \text{Net current receivables}) / \text{Total current liabilities} \\
 &= (\$6,000 + \$4,400 + \$21,600) / \$53,200 \\
 &= 0.60
 \end{aligned}$$

9.

$$\begin{aligned}
 \text{Inventory turnover} &= \text{Cost of goods sold} / \text{Average merchandise inventory} \\
 &= \$126,000 / [(\$27,600 + \$30,800) / 2] \\
 &= 4.32
 \end{aligned}$$

10.

$$\begin{aligned}
 \text{Gross profit percentage} &= \text{Gross profit} / \text{Net sales revenue} \\
 &= (\$184,800 - \$126,000) / \$184,800 \\
 &= 0.32 \\
 &= 32\%
 \end{aligned}$$

11A.

ROCKY CORPORATION Income Statement Year Ended December 31, 2016	
Net Sales	\$ 70,800
Cost of Goods Sold	29,200
Gross Profit	41,600
Operating Expenses	22,000
Operating Income	19,600
Other Revenues and (Expenses)	(6,000)
Income Before Income Taxes	13,600
Income Tax Expense (\$13,600 × 30%)	4,080
Income from Continuing Operations	9,520
Discontinued Operations (less applicable tax of \$1,440)	3,360
Income Before Extraordinary Items	12,880
Extraordinary Loss (less applicable tax saving of \$840)	(1,960)
Net Income	\$ 10,920

Chapter 18

Try It! Solutions

1. FA
2. MA
3. MA
4. MA
5. FA
6. e
7. d
8. b
9. a
10. c
11. Product, direct labor, prime and conversion
12. Period
13. Product, manufacturing overhead, conversion
14. Product, direct materials, prime
15. Product, manufacturing overhead, conversion
16. Period

17.

ABC Manufacturing Company Schedule of Cost of Goods Manufactured Year Ended December 31, 2017 (in millions)		
Beginning Work-in-Process Inventory		\$ 12
Direct Materials Used:		
Beginning Raw Materials Inventory	\$ 5	
Purchases of Raw Materials (including Freight In)	25	
Raw Materials Available for Use	30	
Ending Raw Materials Inventory	(7)	
Direct Materials Used		\$ 23
Direct Labor		36
Manufacturing Overhead		17
Total Manufacturing Costs Incurred during the Year		76
Total Manufacturing Costs to Account For		88
Ending Work-in-Process Inventory		(16)
Cost of Goods Manufactured		\$ 72

ABC Manufacturing Company Schedule of Cost of Goods Sold Year Ended December 31, 2017 (in millions)	
Beginning Finished Goods Inventory	\$ 8
Cost of Goods Manufactured	72
Cost of Goods Available for Sale	80
Ending Finished Goods Inventory	(6)
Cost of Goods Sold	\$ 74

18.

Total costs / Total number of services provided = Unit cost per service

\$2,340 / 45 offices = \$52 per office

Chapter 19

Try It! Solutions

1. Process costing
2. Job order costing
3. Job order costing
4. Process costing
5. Job order costing

Date	Accounts and Explanation	Debit	Credit
6.	Raw Materials Inventory	10,000	
	Accounts Payable		10,000
7.	Work-in-Process Inventory	6,000	
	Manufacturing Overhead	500	
	Raw Materials Inventory		6,500
8.	Work-in-Process Inventory (\$8,000 × 0.80)	6,400	
	Manufacturing Overhead	1,600	
	Wages Payable		8,000

9.
$$\text{Predetermined overhead allocation rate} = \frac{\$10,000}{4,000 \text{ machine hours}} = \$2.50 \text{ per machine hour}$$

10.
$$\text{Overhead allocated} = \$2.50 \text{ per machine hour} \times 4,250 \text{ machine hours} = \$10,625$$

Date	Accounts and Explanation	Debit	Credit
11.	Finished Goods Inventory	25,000	
	Work-in-Process Inventory		25,000
12.	Accounts Receivable	52,000	
	Sales Revenue		52,000
	Cost of Goods Sold	22,000	
	Finished Goods Inventory		22,000

13.
$$\text{Predetermined overhead allocation rate} = \frac{\$500,000}{10,000 \text{ direct labor hours}} = \$50 \text{ per direct labor hour}$$

14.
$$\text{Overhead allocated} = \$50 \text{ per direct labor hour} \times 10,500 \text{ hours} = \$525,000$$

Date	Accounts and Explanation	Debit	Credit
	Work-in-Process Inventory	525,000	
	Manufacturing Overhead		525,000

15.
$$\$550,000 \text{ actual overhead} - \$525,000 \text{ allocated overhead} = \$25,000 \text{ underallocated}$$

Date	Accounts and Explanation	Debit	Credit
	Cost of Goods Sold	25,000	
	Manufacturing Overhead		25,000

16.
$$\text{Predetermined overhead allocation rate} = \frac{\$45,000}{6,000 \text{ billable hours}} = \$7.50 \text{ per billable hour}$$

17. Direct labor = 15 billable hours \times \$75.00 per billable hour = \$1,125.00
 Indirect costs = 15 billable hours \times \$7.50 per billable hour = \$112.50
 Total cost = \$1,125.00 + \$112.50 = \$1,237.50

18. Profit = 60% of cost = 60% \times \$1,237.50 = \$742.50
 Price = Cost + Profit = \$1,237.50 + \$742.50 = \$1,980.00

Chapter 20

Try It! Solutions

1. Process costing
2. Both
3. Job order costing
4. Process costing
5. Both
6. EUP for direct materials = 6,500 units \times 100% = 6,500 EUP
 EUP for conversion costs = 6,500 units \times 85% = 5,525 EUP
7. Units to account for: 500 units + 2,000 units = 2,500 units
 Units accounted for: 2,100 units + In Process = 2,500 units
 In Process = 400 units
8. Transferred In: (2,100 units \times 100%) + (400 units \times 100%) = 2,500 EUP
 Direct Materials: (2,100 units \times 100%) + (400 units \times 100%) = 2,500 EUP
 Conversion Costs: (2,100 units \times 100%) + (400 units \times 45%) = 2,280 EUP
9. Transferred In: \$31,250 / 2,500 EUP = \$12.50 per EUP
 Direct Materials: \$2,500 / 2,500 EUP = \$ 1.00 per EUP
 Conversion Costs: \$6,840 / 2,280 EUP = \$ 3.00 per EUP

 Total: = \$16.50 per EUP
10. \$16.50 per EUP \times 2,100 EUP = \$34,650

11.

Date	Accounts and Explanation	Debit	Credit
	Work-in-Process Inventory—Bottling	75,000	
	Work-in-Process Inventory—Mixing		75,000
	Work-in-Process Inventory—Packaging	50,000	
	Work-in-Process Inventory—Bottling		50,000
	Finished Goods Inventory	65,000	
	Work-in-Process Inventory—Packaging		65,000

12. Managers use production cost reports to control costs, evaluate performance, price products, identify profitability of different products, and prepare financial statements.

13A.

Units to account for: 500 units + 2,000 units = 2,500 units
 Units accounted for: 500 units + 1,600 units + In Process = 2,500 units
 In Process = 400 units

14A.

Transferred In: (500 units × 0%) + (1,600 units × 100%) + (400 units × 100%) = 2,000 EUP
 Direct Materials: (500 units × 0%) + (1,600 units × 100%) + (400 units × 100%) = 2,000 EUP
 Conversion Costs: (500 units × 80%) + (1,600 units × 100%) + (400 units × 45%) = 2,180 EUP

15A.

Transferred In: \$25,000 / 2,000 EUP = \$12.50 per EUP
 Direct Materials: \$2,000 / 2,000 EUP = \$ 1.00 per EUP
 Conversion Costs: \$5,450 / 2,180 EUP = \$ 2.50 per EUP

16A.**Transferred In**

Beginning WIP			\$ 6,250
To complete Beginning WIP	0 EUP	$\times \$12.50 \text{ per EUP}$	= 0
Started and Completed	1,600 EUP	$\times \$12.50 \text{ per EUP}$	= 20,000
Transferred to FG			<u>\$ 26,250</u>

Direct Materials

Beginning WIP			\$ 500
To complete Beginning WIP	0 EUP	$\times \$1.00 \text{ per EUP}$	= 0
Completed	1,600 EUP	$\times \$1.00 \text{ per EUP}$	= 1,600
Transferred to FG			<u>\$ 2,100</u>

Conversion Costs

Beginning WIP			\$ 1,250
To complete Beginning WIP	400 EUP	$\times \$2.50 \text{ per EUP}$	= 1,000
Completed	1,600 EUP	$\times \$2.50 \text{ per EUP}$	= 4,000
Transferred to FG			<u>\$ 6,250</u>

Total			<u>\$ 34,600</u>
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Chapter 21**Try It! Solutions**

- Variable
- Fixed
- Mixed
- Fixed
- Variable

6.	Sales revenue	(200 tables \times \$100 per table)	\$ 20,000
	– Variable costs	(200 tables \times \$40 per table)	8,000
	Contribution margin	(200 tables \times \$60 per table)	12,000
	– Fixed costs		6,000
	Operating income		<u>\$ 6,000</u>

- Contribution margin = \$12,000

8.
$$\text{Unit contribution margin} = \$100 \text{ per table} - \$40 \text{ per table} = \$60 \text{ per table}$$

9.
$$\text{Contribution margin ratio} = \$60 \text{ per table} / \$100 \text{ per table} = 60\%$$

10.

$$\begin{aligned} \text{Net sales revenue} - \text{Variable costs} - \text{Fixed costs} &= \text{Target profit} \\ (\$100 \text{ per unit} \times \text{Units sold}) - (\$40 \text{ per unit} \times \text{Units sold}) - \$6,000 &= \$12,000 \\ [(\$100 \text{ per unit} - \$40 \text{ per unit}) \times \text{Units sold}] - \$6,000 &= \$12,000 \\ \$60 \text{ per unit} \times \text{Units sold} &= \$12,000 + \$6,000 \\ \$60 \text{ per unit} \times \text{Units sold} &= \$18,000 \\ \text{Units sold} &= \$18,000 / \$60 \text{ per unit} \\ \text{Units sold} &= 300 \text{ units} \end{aligned}$$

11.
$$\begin{aligned} \text{Required sales in units} &= \frac{\text{Fixed costs} + \text{Target profit}}{\text{Contribution margin per unit}} \\ &= \frac{\$6,000 + \$12,000}{\$100 \text{ per unit} - \$40 \text{ per unit}} \\ &= 300 \text{ units} \end{aligned}$$

12.
$$\text{Contribution margin ratio} = \$60 \text{ per table} / \$100 \text{ per table} = 60\%$$

$$\begin{aligned} \text{Required sales in dollars} &= \frac{\text{Fixed costs} + \text{Target profit}}{\text{Contribution margin ratio}} \\ &= \frac{\$6,000 + \$12,000}{60\%} \\ &= \$30,000 \end{aligned}$$

13.
$$\begin{aligned} \text{Required sales in units} &= \frac{\text{Fixed costs} + \text{Target profit}}{\text{Contribution margin per unit}} \\ &= \frac{\$6,000 + \$0}{\$100 \text{ per unit} - \$40 \text{ per unit}} \\ &= 100 \text{ units} \end{aligned}$$

14.
$$\text{Variable cost} = \$40 + \$10 = \$50; \text{Contribution margin per unit} = \$100 - \$50 = \$50$$

$$\begin{aligned} \text{Required sales in units} &= \frac{\text{Fixed costs} + \text{Target profit}}{\text{Contribution margin per unit}} \\ &= \frac{\$6,000 + \$0}{\$50 \text{ per unit}} \\ &= 120 \text{ units} \end{aligned}$$

15. Fixed costs = \$6,000 – \$600 = \$5,400

$$\begin{aligned}\text{Required sales in units} &= \frac{\text{Fixed costs} + \text{Target profit}}{\text{Contribution margin per unit}} \\ &= \frac{\$5,400 + \$0}{\$100 \text{ per unit} - \$40 \text{ per unit}} \\ &= 90 \text{ units}\end{aligned}$$

16. Sales price = \$100 × 1.10 = \$110; Contribution margin per unit = \$110 – \$40 = \$70

$$\begin{aligned}\text{Required sales in units} &= \frac{\text{Fixed costs} + \text{Target profit}}{\text{Contribution margin per unit}} \\ &= \frac{\$6,000 + \$0}{\$70 \text{ per unit}} \\ &= 86 \text{ units}^*\end{aligned}$$

*Rounded up to next whole unit

17. Breakeven sales:

$$\begin{aligned}\text{Required sales in units} &= \frac{\text{Fixed costs} + \text{Target profit}}{\text{Contribution margin per unit}} \\ &= \frac{\$6,000 + \$0}{\$60 \text{ per unit}} \\ &= 100 \text{ units}\end{aligned}$$

$$\begin{aligned}\text{Margin of safety in units} &= \text{Expected sales} - \text{Breakeven sales} \\ &= 200 \text{ tables} - 100 \text{ tables} \\ &= 100 \text{ tables}\end{aligned}$$

18. Contribution margin income statement with sales of 200 tables:

Sales revenue	(200 tables × \$100 per table)	\$ 20,000
– Variable costs	(200 tables × \$40 per table)	8,000
Contribution margin	(200 tables × \$60 per table)	12,000
– Fixed costs		6,000
Operating income		\$ 6,000

$$\begin{aligned}\text{Degree of operating leverage} &= \frac{\text{Contribution margin}}{\text{Operating income}} \\ &= \frac{\$12,000}{\$6,000} = 2.00\end{aligned}$$

19. Step 1: Calculate the weighted-average contribution margin per unit, as follows:

	Tables	Chairs	Total
Sales price per unit	\$ 100	\$ 50	
Variable cost per unit	40	30	
Contribution margin per unit	60	20	
Sales mix in units	× 1	× 4	5 units
Contribution margin	\$ 60	\$ 80	\$ 140
Weighted-average contribution margin per unit (\$140 per unit / 5 units)			\$ 28

Step 2: Calculate the breakeven point in units for the “package” of products:

$$\begin{aligned}
 \text{Required sales in units} &= \frac{\text{Fixed cost} + \text{Target profit}}{\text{Weighted-average contribution margin per unit}} \\
 &= \frac{\$7,000 + \$0}{\$28 \text{ per item}} \\
 &= 250 \text{ items}
 \end{aligned}$$

Step 3: Calculate the breakeven point in units for each product. Multiply the “package” breakeven point in units by each product’s proportion of the sales mix:

$$\begin{aligned}
 \text{Breakeven sales of tables:} & \quad (250 \text{ items} \times 1/5) = 50 \text{ tables} \\
 \text{Breakeven sales of chairs:} & \quad (250 \text{ items} \times 4/5) = 200 \text{ chairs}
 \end{aligned}$$

20.

	Absorption Costing	Variable Costing
Direct materials	\$ 25	\$ 25
Direct labor	45	45
Variable manufacturing overhead	15	15
Fixed manufacturing overhead (\$5,000 / 500 units)	10	
Total unit cost	\$ 95	\$ 85

21. Absorption Costing: Production cost per unit = $\$80 + \$20 = \$100$

Sales Revenue	(200 units \times \$150 per unit)	\$ 30,000
Cost of Goods Sold	(200 units \times \$100 per unit)	<u>20,000</u>
Gross Profit		10,000
Selling and Administrative Expenses		<u>7,500</u>
Operating Income		<u>\$ 2,500</u>

Variable Costing: Production cost per unit = \$80

Sales Revenue	(200 units \times \$150 per unit)	\$ 30,000
Variable Costs	(200 units \times \$80 per unit)	<u>16,000</u>
Contribution Margin		14,000
Fixed Costs:		
Manufacturing	(150 units \times \$20 per unit)	3,000
Selling and Administrative		<u>7,500</u>
Operating Income		<u>\$ 3,500</u>

Chapter 22

Try It! Solutions

- | | |
|-----------------------------------|-------|
| 1. Planning | 6. d |
| 2. Controlling | 7. a |
| 3. Benchmarking | 8. e |
| 4. Coordinating and communicating | 9. c |
| 5. f | 10. b |

- 11.**
- | | |
|--|-------------------|
| First quarter: | \$10,000 |
| Second quarter: $\$10,000 \times 1.05 =$ | \$10,500 |
| Third quarter: $\$10,500 \times 1.05 =$ | \$11,025 |
| Fourth quarter: $\$11,025 \times 1.05 =$ | \$11,576 |
| Total: | <u>= \$43,101</u> |

- 12.**
- | | |
|---------------------------------------|---------------------|
| Budgeted XCs to be sold | 1,500 |
| Plus: Desired XCs in ending inventory | 180 |
| Total XCs needed | <u>1,680</u> |
| Less: XCs in beginning inventory | 350 |
| Budgeted XCs to be produced | <u><u>1,330</u></u> |

13.

	January	February	March
Receipts from cash sales	\$ 5,000	\$ 5,500	\$ 5,250
Receipts from sales on account	12,500	15,000	14,000
Total cash receipts from customers	<u>\$ 17,500</u>	<u>\$ 20,500</u>	<u>\$ 19,250</u>

14.

	January	February	March
Cash sales (20%)	\$ 4,000	\$ 4,400	\$ 4,800
Sales on account (80%)	16,000	17,600	19,200
Total sales	<u>\$ 20,000</u>	<u>\$ 22,000</u>	<u>\$ 24,000</u>

	January	February	March
Receipts from cash sales	\$ 4,000	\$ 4,400	\$ 4,800
Receipts from sales on account	13,500	16,000	17,600
Total cash receipts from customers	<u>\$ 17,500</u>	<u>\$ 20,400</u>	<u>\$ 22,400</u>

15A.

Budgeted tents to be sold	250
Plus: Desired tents in ending inventory (280 tents \times 0.05)	<u>14</u>
Total tents needed	264
Less: Tents in beginning inventory	<u>25</u>
Budgeted tents to be purchased	<u>239</u>

16A.

	January	February	March
Rent	\$ 1,000	\$ 1,000	\$ 1,000
Utilities	0	500	500
Insurance	600	0	0
Total cash payments for S&A	<u>\$ 1,600</u>	<u>\$ 1,500</u>	<u>\$ 1,500</u>

Chapter 23

Try It! Solutions

1.

GARLAND COMPANY Flexible Budget For the Month Ended December 31, 2016				
	Budget Amounts per Unit			
Units		500	600	700
Sales Revenue	\$ 5.00	\$ 2,500	\$ 3,000	\$ 3,500
Variable Costs	2.00	1,000	1,200	1,400
Contribution Margin		1,500	1,800	2,100
Fixed Costs		500	500	500
Operating Income		\$ 1,000	\$ 1,300	\$ 1,600

2. c

3. e

4. b

5. a

6. d

7. Actual cost per yard = \$10,500 yards / 1,680 yards = \$6.25 per yard

$$\begin{aligned}
 \text{Direct Materials Cost Variance} &= (\text{AC} - \text{SC}) \times \text{AQ} \\
 &= (\$6.25 \text{ per yard} - \$6.00 \text{ per yard}) \times 1,680 \text{ yards} \\
 &= \$420 \text{ U}
 \end{aligned}$$

8. Standard quantity = 1.5 yards per shirt \times 1,200 shirts = 1,800 yards

$$\begin{aligned}
 \text{Direct Materials Efficiency Variance} &= (\text{AQ} - \text{SQ}) \times \text{SC} \\
 &= (1,680 \text{ yards} - 1,800 \text{ yards}) \times \$6.00 \text{ per yard} \\
 &= \$720 \text{ F}
 \end{aligned}$$

9. Total DM Variance = \$420 U + \$720 F = \$300 F

10. Actual cost per direct labor hour = \$36,540 / 2,520 DLHr = \$14.50 per DLHr

$$\begin{aligned}
 \text{Direct Labor Cost Variance} &= (\text{AC} - \text{SC}) \times \text{AQ} \\
 &= (\$14.50 \text{ per DLHr} - \$15.00 \text{ per DLHr}) \times 2,520 \text{ DLHr} \\
 &= \$1,260 \text{ F}
 \end{aligned}$$

11. Standard quantity = 2 DLHr per shirt \times 1,200 shirts = 2,400 DLHr

$$\begin{aligned}\text{Direct Labor Efficiency Variance} &= (\text{AQ} - \text{SQ}) \times \text{SC} \\ &= (2,520 \text{ DLHr} - 2,400 \text{ DLHr}) \times \$15.00 \text{ per DLHr} \\ &= \$1,800 \text{ U}\end{aligned}$$

12. Total DL Variance = \$1,260 F + \$1,800 U = \$540 U

13. Actual variable cost per direct labor hour = \$1,512 / 2,520 DLHr = \$0.60 per DLHr

$$\begin{aligned}\text{Variable Overhead Cost Variance} &= (\text{AC} - \text{SC}) \times \text{AQ} \\ &= (\$0.60 \text{ per DLHr} - \$0.50 \text{ per DLHr}) \times 2,520 \text{ DLHr} \\ &= \$252 \text{ U}\end{aligned}$$

14. Standard quantity = 2 DLHr per shirt \times 1,200 shirts = 2,400 DLHr

$$\begin{aligned}\text{Variable Overhead Efficiency Variance} &= (\text{AQ} - \text{SQ}) \times \text{SC} \\ &= (2,520 \text{ DLHr} - 2,400 \text{ DLHr}) \times \$0.50 \text{ per DLHr} \\ &= \$60 \text{ U}\end{aligned}$$

15. Total VOH Variance = \$252 U + \$60 U = \$312 U

16.
$$\begin{aligned}\text{Fixed Overhead Cost Variance} &= \text{Actual fixed overhead} - \text{Budgeted fixed overhead} \\ &= \$750 - \$700 \\ &= \$50 \text{ U}\end{aligned}$$

17.

$$\begin{aligned}\text{Overhead allocated to production} &= \frac{\text{Standard overhead}}{\text{allocation rate}} \times \frac{\text{Standard quantity of the allocation base}}{\text{allowed for actual output}} \\ &= \$0.25 \text{ per DLHr} \times (2.00 \text{ DLHr per shirt} \times 1,200 \text{ shirts}) \\ &= \$0.25 \text{ per DLHr} \times 2,400 \text{ DLHr} \\ &= \$600\end{aligned}$$

$$\begin{aligned}\text{Fixed overhead Volume Variance} &= \text{Budgeted fixed overhead} - \text{Allocated fixed overhead} \\ &= \$700 - \$600 \\ &= \$100 \text{ U}\end{aligned}$$

18. Total FOH variance = \$50 U + \$100 U = \$150 U

19. c

20. c

21. a

22. c

23. b

24.

Date	Accounts and Explanation	Debit	Credit
Adj.	Variable Overhead Efficiency Variance	458	
	Fixed Overhead Cost Variance	667	
	Variable Overhead Cost Variance		320
	Fixed Overhead Volume Variance		625
	Manufacturing Overhead		180
	<i>To adjust Manufacturing Overhead.</i>		

25. Manufacturing Overhead was adjusted with a credit balance, which indicates overhead was underallocated.

Chapter 24

Try It! Solutions

1.

$$\text{Predetermined overhead allocation rate} = \frac{\text{Total estimated overhead costs}}{\text{Total estimated quantity of the overhead allocation base}}$$

$$\text{Purchasing} = \frac{\$10,000}{200 \text{ purchase orders}} = \$50 \text{ per purchase order}$$

$$\text{Materials Handling} = \frac{\$7,500}{15,000 \text{ parts}} = \$0.50 \text{ per part}$$

2.

$$\text{Allocated manufacturing overhead cost} = \text{Predetermined overhead allocation rate} \times \text{Actual quantity of the allocation base used}$$

$$\text{Purchasing} = \$50 \text{ per purchase order} \times 5 \text{ purchase orders} = \$250$$

$$\text{Materials Handling} = \$0.50 \text{ per part} \times 600 \text{ parts} = \$300$$

$$\text{Total overhead allocated to Regular} = \$550$$

3.

$$\text{Allocated manufacturing overhead cost} = \text{Predetermined overhead allocation rate} \times \text{Actual quantity of the allocation base used}$$

$$\text{Purchasing} = \$50 \text{ per purchase order} \times 7 \text{ purchase orders} = \$350$$

$$\text{Materials Handling} = \$0.50 \text{ per part} \times 750 \text{ parts} = \$375$$

$$\text{Total overhead allocated to Super} = \$725$$

- 4. cost center
- 5. profit center
- 6. profit center
- 7. cost center
- 8. responsibility center
- 9. investment center
- 10. revenue center
- 11. lower
- 12. customer perspective
- 13. learning and growth perspective
- 14. financial perspective
- 15. customer perspective
- 16. internal business perspective
- 17. b
- 18. c
- 19. a

20.
$$\text{Profit margin ratio} = \frac{\text{Operating income}}{\text{Net sales}} = \frac{\$60,000}{\$1,000,000} = 6\%$$

21.
$$\text{Asset turnover ratio} = \frac{\text{Net sales}}{\text{Average total assets}} = \frac{\$1,000,000}{\$400,000} = 2.5$$

22.
$$\text{Return on investment} = \frac{\text{Operating income}}{\text{Average total assets}} = \frac{\$60,000}{\$400,000} = 15\%$$

$$\text{Return on investment} = \text{Profit margin ratio} \times \text{Asset turnover ratio} = 6\% \times 2.5 = 15\%$$

23.
$$\begin{aligned} \text{Residual income} &= \text{Operating income} - (\text{Target rate of return} \times \text{Average total assets}) \\ &= \$60,000 - (12\% \times \$400,000) \\ &= \$60,000 - \$48,000 \\ &= \$12,000 \end{aligned}$$

- 24A. The Motor Division has excess capacity, so the manager should consider the variable cost of \$15 for the minimum transfer price.
- 25A. The Electric Drill Division can purchase the motors from an outside vendor for \$20, so that is the maximum amount the manager should consider.

Chapter 25

Try It! Solutions

	Financial	Nonfinancial	Relevant	Irrelevant
1. Amount paid for current printers	✓			✓
2. Resale value of current printers	✓		✓	
3. Cost of new printer	✓		✓	
4. Operating costs of current printers	✓		✓	
5. Operating costs of new printers	✓		✓	
6. Employee morale		✓	✓	

7. Thomas should accept the offer because operating income will increase by \$2,500. Fixed costs do not change and therefore are not relevant. They should not be considered.

Expected increase in revenue	(5,000 units × \$9.00)	\$ 45,000
Expected increase in variable manufacturing costs	(5,000 units × \$8.50)	(42,500)
Expected increase in operating income	(5,000 units × \$0.50)	<u>\$ 2,500</u>

8. Thomas should not accept the offer if operating at capacity. To sell these 5,000 units at the reduced price of \$9.00 means the company cannot sell them at the regular price of \$12.50. Operating income would decrease if the order is accepted by the difference in revenues:

$$(\$12.50 - \$9.00) \times 5,000 \text{ units} = \$17,500$$

9. McCollum should not drop Product B because operating income will decrease by \$40,000.

Expected decrease in revenue	\$ (75,000)
Expected decrease in total variable costs	35,000
Expected decrease in operating income	<u>\$ (40,000)</u>

The decrease in operating income equals the contribution margin provided by Product B.

10. McCollum should not drop Product B because operating income will decrease by \$17,500.

Expected decrease in revenue		\$ (75,000)
Expected decrease in total variable costs	\$ 35,000	
Expected decrease in fixed costs (50% × \$45,000)	<u>22,500</u>	
Expected decrease in total costs		57,500
Expected decrease in operating income		<u>\$ (17,500)</u>

11. Grimm should continue to make the cakes. Outsourcing will decrease profits by \$800.

Cake Costs	Make Cakes	Outsource Cakes	Difference (Make – Outsource)
Variable costs:			
Direct materials	\$ 500		\$ 500
Direct labor	1,000		1,000
Variable manufacturing overhead	200		200
Purchase cost (\$25 × 100 cakes)		\$ 2,500	(2,500)
Total differential cost of cakes	<u>\$ 1,700</u>	<u>\$ 2,500</u>	<u>\$ (800)</u>

12. Qualitative factors include quality and on-time delivery. Will the purchased cakes taste as good and be as fresh? Is the vendor reliable or will there be delivery issues?

Chapter 26

Try It! Solutions

1. d 5. b
2. b 6. b
3. c 7. c
4. a

8.

$$\text{Payback for machinery} = \frac{\$600,000}{\$100,000 \text{ per year}} = 6 \text{ years}$$

9.

Total net cash inflows during operating life of the asset (\$100,000/yr. × 8 yrs.)	\$ 800,000
Less: Total depreciation during operating life of the asset (\$600,000 – \$50,000)	<u>550,000</u>
Total operating income during operating life	\$ 250,000
Divide by: Asset's operating life in years	÷ 8 years
Average annual operating income from asset	<u>\$ 31,250</u>

$$\begin{aligned} \text{Average amount invested} &= (\text{Amount invested} + \text{Residual value}) / 2 \\ &= (\$600,000 + \$50,000) / 2 \\ &= \$325,000 \end{aligned}$$

$$\text{ARR} = \frac{\$31,250}{\$325,000} = 0.0962 = 9.62\%$$

10. Lockwood should not invest in the machinery. While it passes the payback analysis, the expected ARR of 9.62% is less than the company's required rate of return of 12%.
11. This is an example of a lump sum payment.

$$\begin{aligned}\text{Present value} &= \text{Principal} \times \text{PV factor for } i = 10\%, n = 3 \\ &= \$5,000 \times 0.751 \\ &= \$3,755\end{aligned}$$

12. This is an example of an annuity.

$$\begin{aligned}\text{Present value} &= \text{Amount of each cash inflow} \times \text{Annuity PV factor for } i = 10\%, n = 3 \\ &= \$5,000 \times 2.487 \\ &= \$12,435\end{aligned}$$

13. While this example has three payments, they are *not equal payments*. Therefore, this is not an annuity, but a series of lump sums. The total present value is \$7,753 (\$1,870 + \$2,619 + \$3,264).

Year 1:

$$\begin{aligned}\text{Present value} &= \text{Principal} \times \text{PV factor for } i = 7\%, n = 1 \\ &= \$2,000 \times 0.935 \\ &= \$1,870\end{aligned}$$

Year 2:

$$\begin{aligned}\text{Present value} &= \text{Principal} \times \text{PV factor for } i = 7\%, n = 2 \\ &= \$3,000 \times 0.873 \\ &= \$2,619\end{aligned}$$

Year 3:

$$\begin{aligned}\text{Present value} &= \text{Principal} \times \text{PV factor for } i = 7\%, n = 3 \\ &= \$4,000 \times 0.816 \\ &= \$3,264\end{aligned}$$

14. The NPV is \$69,500.

Years		Net Cash Inflow	Annuity PV Factor ($i = 12\%, n = 9$)	Present Value
1–9	Present value of annuity	\$125,000	5.328	\$ 666,000
0	Initial investment			(596,500)
	Net present value			<u>\$ 69,500</u>

15. The IRR is 15%, which is the factor determined below in the $n = 9$ row of Table B-2.

$$\begin{aligned}\text{Annuity PV factor } (i = ?, n = 9) &= \text{Initial investment} / \text{Amount of cash inflow} \\ &= \$596,500 / \$125,000 \\ &= 4.772\end{aligned}$$

16. Unless negative qualitative factors exist, Cornell should accept the project because the IRR of 15% is more than the required rate of 12% and the NPV is positive.