Chapter 8
Master Budgeting

Solutions to Questions

8-1 A budget is a detailed quantitative plan for the acquisition and use of financial and other resources over a given time period. Budgetary control involves using budgets to increase the likelihood that all parts of an organization are working together to achieve the goals set down in the planning stage.

8-2

1. Budgets encourage managers to *think about* and *plan* for the future.
2. Budgets c*ommunicate* financial goals throughout the organization.
3. Budgets *allocate resources* within the organization where they can be used most effectively.
4. Budgets *coordinate* the plans and activities of departmental managers.
5. Budgets uncover potential *bottlenecks* before they occur.
6. Budgets can be compared to actual results to improve the efficiency and effectiveness of operations and to evaluate and reward employees.

8-3 A perpetual budget is a 12-month budget that continuously rolls forward one month (or quarter) at a time as the current month (or quarter) is completed. This approach keeps managers continually focused one year ahead.

8-4 A master budget represents a summary of all of management's plans and goals for the future, and outlines the way in which these plans are to be accomplished. The master budget is composed of a number of smaller, specific budgets encompassing sales, production, raw materials, direct labor, manufacturing overhead, selling and administrative expenses, and inventories. The master budget usually also contains a budgeted income statement, budgeted balance sheet, and cash budget.

8-5 The level of sales impacts virtually every other aspect of the firm's activities. It determines the production budget, cash collections, cash disbursements, and selling and administrative budget that in turn determine the cash budget and budgeted income statement and balance sheet.

8-6 No. Planning and control are different, although related, concepts. Planning involves developing goals and developing budgets to achieve those goals. Control, by contrast, involves the means by which management attempts to ensure that the goals set down at the planning stage are attained.

8-7 Creating a "budgeting assumptions" tab simplifies the process of determining how changes to a master budget's underlying assumptions impact all supporting schedules and the projected financial statements.

8-8 A self-imposed budget is one in which persons with responsibility over cost control prepare their own budgets. This is in contrast to a budget that is imposed from above. The major advantages of a self-imposed budget are: (1) It shows respect for the opinions of lower-level managers. (2) It leverages the knowledge of lower-level managers to provide more accurate estimates than those imposed by top managers who have less intimate knowledge of day-to-day operations. (3) It increases the lower-level managers' motivation to achieve their own self-imposed goals. (4) It empowers lower-level managers to take ownership of the budget and to be accountable for deviations from it.

Self-imposed budgets do carry with them the risk of budgetary slack. The budgets

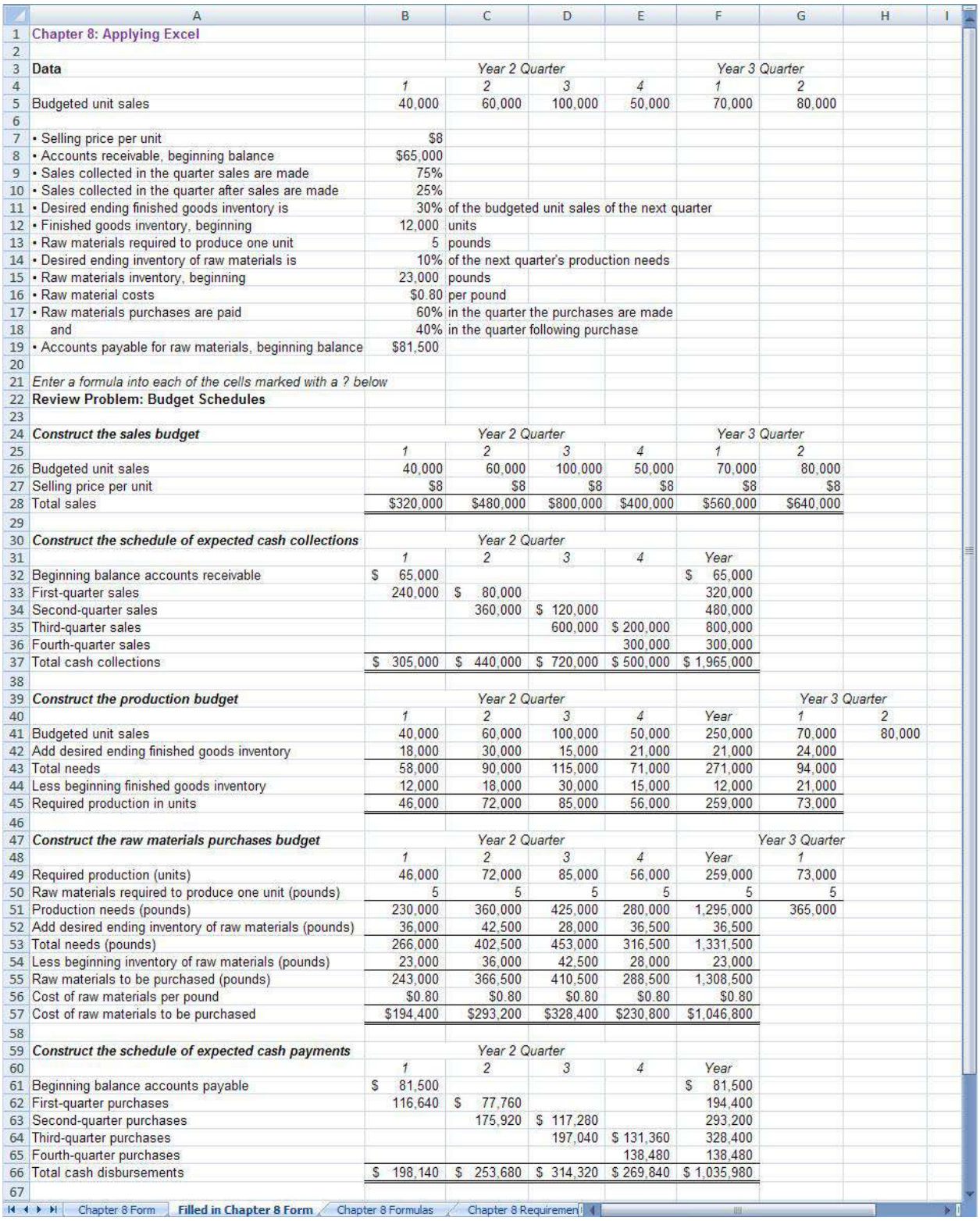
prepared by lower-level managers should be carefully reviewed to prevent too much slack.

8-9 The direct labor budget and other budgets can be used to forecast workforce staffing needs. Careful planning can help a company avoid erratic hiring and laying off of employees.

8-10 The principal purpose of the cash budget is NOT to see how much cash the company will have in the bank at the end of the year. Although this is one of the purposes of the cash budget, the principal purpose is to provide information on probable cash needs *during* the budget period, so that bank loans and other sources of financing can be anticipated and arranged well in advance.

Chapter 8: Applying Excel

The completed worksheet is shown below.



	A	B	C	D	E	F	G	H	I
1	Chapter 8: Applying Excel								
2									
3	Data			Year 2 Quarter			Year 3 Quarter		
4		1	2	3	4	1	2		
5	Budgeted unit sales	40,000	60,000	100,000	50,000	70,000	80,000		
6									
7	• Selling price per unit	$8							
8	• Accounts receivable, beginning balance	$65,000							
9	• Sales collected in the quarter sales are made	75%							
10	• Sales collected in the quarter after sales are made	25%							
11	• Desired ending finished goods inventory is	30%	of the budgeted unit sales of the next quarter						
12	• Finished goods inventory, beginning	12,000	units						
13	• Raw materials required to produce one unit	5	pounds						
14	• Desired ending inventory of raw materials is	10%	of the next quarter's production needs						
15	• Raw materials inventory, beginning	23,000	pounds						
16	• Raw material costs	$0.80	per pound						
17	• Raw materials purchases are paid	60%	in the quarter the purchases are made						
18	and	40%	in the quarter following purchase						
19	• Accounts payable for raw materials, beginning balance	$81,500							
20									
21	*Enter a formula into each of the cells marked with a ? below*								
22	**Review Problem: Budget Schedules**								
23									
24	***Construct the sales budget***			Year 2 Quarter			Year 3 Quarter		
25		1	2	3	4	1	2		
26	Budgeted unit sales	40,000	60,000	100,000	50,000	70,000	80,000		
27	Selling price per unit	$8	$8	$8	$8	$8	$8		
28	Total sales	$320,000	$480,000	$800,000	$400,000	$560,000	$640,000		
29									
30	***Construct the schedule of expected cash collections***			Year 2 Quarter					
31		1	2	3	4	Year			
32	Beginning balance accounts receivable	$ 65,000				$ 65,000			
33	First-quarter sales	240,000	$ 80,000			320,000			
34	Second-quarter sales		360,000	$ 120,000		480,000			
35	Third-quarter sales			600,000	$ 200,000	800,000			
36	Fourth-quarter sales				300,000	300,000			
37	Total cash collections	$ 305,000	$ 440,000	$ 720,000	$ 500,000	$ 1,965,000			
38									
39	***Construct the production budget***			Year 2 Quarter				Year 3 Quarter	
40		1	2	3	4	Year	1	2	
41	Budgeted unit sales	40,000	60,000	100,000	50,000	250,000	70,000	80,000	
42	Add desired ending finished goods inventory	18,000	30,000	15,000	21,000	21,000	24,000		
43	Total needs	58,000	90,000	115,000	71,000	271,000	94,000		
44	Less beginning finished goods inventory	12,000	18,000	30,000	15,000	12,000	21,000		
45	Required production in units	46,000	72,000	85,000	56,000	259,000	73,000		
46									
47	***Construct the raw materials purchases budget***			Year 2 Quarter			Year 3 Quarter		
48		1	2	3	4	Year	1		
49	Required production (units)	46,000	72,000	85,000	56,000	259,000	73,000		
50	Raw materials required to produce one unit (pounds)	5	5	5	5	5	5		
51	Production needs (pounds)	230,000	360,000	425,000	280,000	1,295,000	365,000		
52	Add desired ending inventory of raw materials (pounds)	36,000	42,500	28,000	36,500	36,500			
53	Total needs (pounds)	266,000	402,500	453,000	316,500	1,331,500			
54	Less beginning inventory of raw materials (pounds)	23,000	36,000	42,500	28,000	23,000			
55	Raw materials to be purchased (pounds)	243,000	366,500	410,500	288,500	1,308,500			
56	Cost of raw materials per pound	$0.80	$0.80	$0.80	$0.80	$0.80			
57	Cost of raw materials to be purchased	$194,400	$293,200	$328,400	$230,800	$1,046,800			
58									
59	***Construct the schedule of expected cash payments***			Year 2 Quarter					
60		1	2	3	4	Year			
61	Beginning balance accounts payable	$ 81,500				$ 81,500			
62	First-quarter purchases	116,640	$ 77,760			194,400			
63	Second-quarter purchases		175,920	$ 117,280		293,200			
64	Third-quarter purchases			197,040	$ 131,360	328,400			
65	Fourth-quarter purchases				138,480	138,480			
66	Total cash disbursements	$ 198,140	$ 253,680	$ 314,320	$ 269,840	$ 1,035,980			
67									

Chapter 8 Form | Filled in Chapter 8 Form | Chapter 8 Formulas | Chapter 8 Requiremen

Chapter 8: Applying Excel (continued)

The completed worksheet, with formulas displayed, is shown below.

	A	B	C	D	E	F	G	H
1	**Chapter 8: Applying Excel**							
2								
3	**Data**		*Year 2 Quarter*			*Year 3 Quarter*		
4		*1*	*2*	*3*	*4*	*1*	*2*	
5	Budgeted unit sales	40000	60000	100000	50000	70000	80000	
6								
7	• Selling price per unit	8						
8	• Accounts receivable, beginning balance	65000						
9	• Sales collected in the quarter sales are made	0.75						
10	• Sales collected in the quarter after sales are made	0.25						
11	• Desired ending finished goods inventory is	0.3	of the budgeted unit sales of the next quarter					
12	• Finished goods inventory, beginning	12000	units					
13	• Raw materials required to produce one unit	5	pounds					
14	• Desired ending inventory of raw materials is	0.1	of the next quarter's production needs					
15	• Raw materials inventory, beginning	23000	pounds					
16	• Raw material costs	0.8	per pound					
17	• Raw materials purchases are paid	0.6	in the quarter the purchases are made					
18	and	0.4	in the quarter following purchase					
19	• Accounts payable for raw materials, beginning balance	81500						
20								
21	*Enter a formula into each of the cells marked with a ? below*							
22	**Review Problem: Budget Schedules**							
23								
24	***Construct the sales budget***		*Year 2 Quarter*			*Year 3 Quarter*		
25		*1*	*2*	*3*	*4*	*1*	*2*	
26	Budgeted unit sales	=B5	=C5	=D5	=E5	=F5	=G5	
27	Selling price per unit	=$B$7	=$B$7	=$B$7	=$B$7	=$B$7	=$B$7	
28	Total sales	=B26*B27	=C26*C27	=D26*D27	=E26*E27	=F26*F27	=G26*G27	
29								
30	***Construct the schedule of expected cash collectio***		*Year 2 Quarter*					
31		*1*	*2*	*3*	*4*	*Year*		
32	Beginning balance accounts receivable	=B8				=SUM(B32:E32)		
33	First-quarter sales	=B28*B9	=B28*B10			=SUM(B33:E33)		
34	Second-quarter sales		=C28*B9	=C28*B10		=SUM(B34:E34)		
35	Third-quarter sales			=D28*B9	=D28*B10	=SUM(B35:E35)		
36	Fourth-quarter sales				=E28*B9	=SUM(B36:E36)		
37	Total cash collections	=SUM(B32:B36)	=SUM(C32:C36)	=SUM(D32:D36)	=SUM(E32:E36)	=SUM(B37:E37)		
38								
39	***Construct the production budget***		*Year 2 Quarter*				*Year 3 Quarter*	
40		*1*	*2*	*3*	*4*	*Year*	*1*	*2*
41	Budgeted unit sales	=B5	=C5	=D5	=E5	=SUM(B41:E41)	=F5	=G5
42	Add desired ending finished goods inventory	=C41*$B$11	=D41*$B$11	=E41*$B$11	=G41*$B$11	=E42	=H41*$B$11	
43	Total needs	=B41+B42	=C41+C42	=D41+D42	=E41+E42	=F41+F42	=G41+G42	
44	Less beginning finished goods inventory	=B12	=B42	=C42	=D42	=B44	=E42	
45	Required production in units	=B43-B44	=C43-C44	=D43-D44	=E43-E44	=F43-F44	=G43-G44	
46								
47	***Construct the raw materials purchases budget***		*Year 2 Quarter*				*Year 3 Quarter*	
48		*1*	*2*	*3*	*4*	*Year*	*1*	
49	Required production (units)	=B45	=C45	=D45	=E45	=F45	=G45	
50	Raw materials required to produce one unit (pounds)	=$B$13	=$B$13	=$B$13	=$B$13	=$B$13	=$B$13	
51	Production needs (pounds)	=B49*B50	=C49*C50	=D49*D50	=E49*E50	=F49*F50	=G49*G50	
52	Add desired ending inventory of raw materials (pounds)	=$B$14*C51	=$B$14*D51	=$B$14*E51	=$B$14*G51	=E52		
53	Total needs (pounds)	=B51+B52	=C51+C52	=D51+D52	=E51+E52	=F51+F52		
54	Less beginning inventory of raw materials (pounds)	=B15	=B52	=C52	=D52	=B54		
55	Raw materials to be purchased (pounds)	=B53-B54	=C53-C54	=D53-D54	=E53-E54	=F53-F54		
56	Cost of raw materials per pound	=$B$16	=$B$16	=$B$16	=$B$16	=$B$16		
57	Cost of raw materials to be purchased	=B55*B56	=C55*C56	=D55*D56	=E55*E56	=F55*F56		
58								
59	***Construct the schedule of expected cash payment***		*Year 2 Quarter*					
60		*1*	*2*	*3*	*4*	*Year*		
61	Beginning balance accounts payable	=B19				=SUM(B61:E61)		
62	First-quarter purchases	=B57*B17	=B57*B18			=SUM(B62:E62)		
63	Second-quarter purchases		=C57*B17	=C57*B18		=SUM(B63:E63)		
64	Third-quarter purchases			=D57*B17	=D57*B18	=SUM(B64:E64)		
65	Fourth-quarter purchases				=E57*B17	=SUM(B65:E65)		
66	Total cash disbursements	=SUM(B61:B65)	=SUM(C61:C65)	=SUM(D61:D65)	=SUM(E61:E65)	=SUM(F61:F65)		
67								

Chapter 8 Form | Filled in Chapter 8 Form | Chapter 8 F ...

Chapter 8: Applying Excel (continued)

1. When the budgeted unit sales in the second quarter are increased from 60,000 units to 75,000 units, the result is:

	A	B	C	D	E	F	G	H	I
1	**Chapter 8: Applying Excel**								
2									
3	**Data**			Year 2 Quarter			Year 3 Quarter		
4		1	2	3	4	1	2		
5	Budgeted unit sales	40,000	75,000	100,000	50,000	70,000	80,000		
6									
7	• Selling price per unit	$8							
8	• Accounts receivable, beginning balance	$65,000							
9	• Sales collected in the quarter sales are made	75%							
10	• Sales collected in the quarter after sales are made	25%							
11	• Desired ending finished goods inventory is	30%	of the budgeted unit sales of the next quarter						
12	• Finished goods inventory, beginning	12,000	units						
13	• Raw materials required to produce one unit	5	pounds						
14	• Desired ending inventory of raw materials is	10%	of the next quarter's production needs						
15	• Raw materials inventory, beginning	23,000	pounds						
16	• Raw material costs	$0.80	per pound						
17	• Raw materials purchases are paid	60%	in the quarter the purchases are made						
18	and	40%	in the quarter following purchase						
19	• Accounts payable for raw materials, beginning balance	$81,500							
20									
21	*Enter a formula into each of the cells marked with a ? below*								
22	**Review Problem: Budget Schedules**								
23									
24	***Construct the sales budget***			Year 2 Quarter			Year 3 Quarter		
25		1	2	3	4	1	2		
26	Budgeted unit sales	40,000	75,000	100,000	50,000	70,000	80,000		
27	Selling price per unit	$8	$8	$8	$8	$8	$8		
28	Total sales	$320,000	$600,000	$800,000	$400,000	$560,000	$640,000		
29									
30	***Construct the schedule of expected cash collections***			Year 2 Quarter					
31		1	2	3	4	Year			
32	Beginning balance accounts receivable	$ 65,000				$ 65,000			
33	First-quarter sales	240,000	$ 80,000			320,000			
34	Second-quarter sales		450,000	$ 150,000		600,000			
35	Third-quarter sales			600,000	$ 200,000	800,000			
36	Fourth-quarter sales				300,000	300,000			
37	Total cash collections	$ 305,000	$ 530,000	$ 750,000	$ 500,000	$ 2,085,000			
38									
39	***Construct the production budget***			Year 2 Quarter				Year 3 Quarter	
40		1	2	3	4	Year	1	2	
41	Budgeted unit sales	40,000	75,000	100,000	50,000	265,000	70,000	80,000	
42	Add desired ending finished goods inventory	22,500	30,000	15,000	21,000	21,000	24,000		
43	Total needs	62,500	105,000	115,000	71,000	286,000	94,000		
44	Less beginning finished goods inventory	12,000	22,500	30,000	15,000	12,000	21,000		
45	Required production in units	50,500	82,500	85,000	56,000	274,000	73,000		
46									
47	***Construct the raw materials purchases budget***			Year 2 Quarter			Year 3 Quarter		
48		1	2	3	4	Year	1		
49	Required production (units)	50,500	82,500	85,000	56,000	274,000	73,000		
50	Raw materials required to produce one unit (pounds)	5	5	5	5	5	5		
51	Production needs (pounds)	252,500	412,500	425,000	280,000	1,370,000	365,000		
52	Add desired ending inventory of raw materials (pounds)	41,250	42,500	28,000	36,500	36,500			
53	Total needs (pounds)	293,750	455,000	453,000	316,500	1,406,500			
54	Less beginning inventory of raw materials (pounds)	23,000	41,250	42,500	28,000	23,000			
55	Raw materials to be purchased (pounds)	270,750	413,750	410,500	288,500	1,383,500			
56	Cost of raw materials per pound	$0.80	$0.80	$0.80	$0.80	$0.80			
57	Cost of raw materials to be purchased	$216,600	$331,000	$328,400	$230,800	$1,106,800			
58									
59	***Construct the schedule of expected cash payments***			Year 2 Quarter					
60		1	2	3	4	Year			
61	Beginning balance accounts payable	$ 81,500				$ 81,500			
62	First-quarter purchases	129,960	$ 86,640			216,600			
63	Second-quarter purchases		198,600	$ 132,400		331,000			
64	Third-quarter purchases			197,040	$ 131,360	328,400			
65	Fourth-quarter purchases				138,480	138,480			
66	Total cash disbursements	$ 211,460	$ 285,240	$ 329,440	$ 269,840	$ 1,095,980			
67									

Chapter 8 Requirement 1 | Chapter 8 Requirement 2 | Sheet3

The cash disbursements for raw materials have increased from $1,035,980 to $1,095,980 because the increased unit sales in the second quarter require additional purchases of raw materials.

2. With the revised sales budget, the worksheet should look like this:

	A	B	C	D	E	F	G	H	I
1	Chapter 8: Applying Excel								
2									
3	**Data**			Year 2 Quarter			Year 3 Quarter		
4		1	2	3	4	1	2		
5	Budgeted unit sales	50,000	70,000	120,000	80,000	90,000	100,000		
6									
7	• Selling price per unit	$7							
8	• Accounts receivable, beginning balance	$65,000							
9	• Sales collected in the quarter sales are made	75%							
10	• Sales collected in the quarter after sales are made	25%							
11	• Desired ending finished goods inventory is	30%	of the budgeted unit sales of the next quarter						
12	• Finished goods inventory, beginning	12,000	units						
13	• Raw materials required to produce one unit	5	pounds						
14	• Desired ending inventory of raw materials is	10%	of the next quarter's production needs						
15	• Raw materials inventory, beginning	23,000	pounds						
16	• Raw material costs	$0.80	per pound						
17	• Raw materials purchases are paid	60%	in the quarter the purchases are made						
18	and	40%	in the quarter following purchase						
19	• Accounts payable for raw materials, beginning balance	$81,500							
20									
21	*Enter a formula into each of the cells marked with a ? below*								
22	**Review Problem: Budget Schedules**								
23									
24	***Construct the sales budget***			Year 2 Quarter			Year 3 Quarter		
25		1	2	3	4	1	2		
26	Budgeted unit sales	50,000	70,000	120,000	80,000	90,000	100,000		
27	Selling price per unit	$7	$7	$7	$7	$7	$7		
28	Total sales	$350,000	$490,000	$840,000	$560,000	$630,000	$700,000		
29									
30	***Construct the schedule of expected cash collections***			Year 2 Quarter					
31		1	2	3	4	Year			
32	Beginning balance accounts receivable	$ 65,000				$ 65,000			
33	First-quarter sales	262,500	$ 87,500			350,000			
34	Second-quarter sales		367,500	$ 122,500		490,000			
35	Third-quarter sales			630,000	$ 210,000	840,000			
36	Fourth-quarter sales				420,000	420,000			
37	Total cash collections	$ 327,500	$ 455,000	$ 752,500	$ 630,000	$ 2,165,000			
38									
39	***Construct the production budget***			Year 2 Quarter				Year 3 Quarter	
40		1	2	3	4	Year	1	2	
41	Budgeted unit sales	50,000	70,000	120,000	80,000	320,000	90,000	100,000	
42	Add desired ending finished goods inventory	21,000	36,000	24,000	27,000	27,000	30,000		
43	Total needs	71,000	106,000	144,000	107,000	347,000	120,000		
44	Less beginning finished goods inventory	12,000	21,000	36,000	24,000	12,000	27,000		
45	Required production in units	59,000	85,000	108,000	83,000	335,000	93,000		
46									
47	***Construct the raw materials purchases budget***			Year 2 Quarter			Year 3 Quarter		
48		1	2	3	4	Year	1		
49	Required production (units)	59,000	85,000	108,000	83,000	335,000	93,000		
50	Raw materials required to produce one unit (pounds)	5	5	5	5	5	5		
51	Production needs (pounds)	295,000	425,000	540,000	415,000	1,675,000	465,000		
52	Add desired ending inventory of raw materials (pounds)	42,500	54,000	41,500	46,500	46,500			
53	Total needs (pounds)	337,500	479,000	581,500	461,500	1,721,500			
54	Less beginning inventory of raw materials (pounds)	23,000	42,500	54,000	41,500	23,000			
55	Raw materials to be purchased (pounds)	314,500	436,500	527,500	420,000	1,698,500			
56	Cost of raw materials per pound	$0.80	$0.80	$0.80	$0.80	$0.80			
57	Cost of raw materials to be purchased	$251,600	$349,200	$422,000	$336,000	$1,358,800			
58									
59	***Construct the schedule of expected cash payments***			Year 2 Quarter					
60		1	2	3	4	Year			
61	Beginning balance accounts payable	$ 81,500				$ 81,500			
62	First-quarter purchases	150,960	$ 100,640			251,600			
63	Second-quarter purchases		209,520	$ 139,680		349,200			
64	Third-quarter purchases			253,200	$ 168,800	422,000			
65	Fourth-quarter purchases				201,600	201,600			
66	Total cash disbursements	$ 232,460	$ 310,160	$ 392,880	$ 370,400	$ 1,305,900			
67									

Chapter 8 Requirement 1 | Chapter 8 Requirement 2 | Sheet3

a. The total expected cash collections for the year under this revised budget are $2,165,000.

b. The total required production for the year under this revised budget is 335,000 units.

c. The total cost of raw materials to be purchased for the year under this revised budget is $1,358,800.

d. The total expected cash disbursements for raw materials for the year under this revised budget are $1,305,900.

e. The production constraint of 90,000 units per quarter is a problem in the third quarter of Year 2 and may be a problem later in Year 3. This problem can be approached in a variety of ways. First, the excess capacity in the first and second quarters could be used to build up finished goods inventories beyond the usual levels. Second, management could investigate acquiring another of the milling machines. Third, improvement efforts can be focused on the milling machine; if these efforts are successful, the capacity of the milling machine can be increased and consequently the capacity of the entire plant can be increased. Fourth, management could investigate hiring another company with such a milling machine to do some of the work.

The Foundational 15

1. The budgeted sales for July are computed as follows:

Unit sales (a)	10,000
Selling price per unit (b).....	$70
Total sales (a) × (b).....	$700,000

2. The expected cash collections for July are computed as follows:

	July
June sales:	
$588,000 × 60%	$352,800
July sales:	
$700,000 × 40%	280,000
Total cash collections	$632,800

3. The accounts receivable balance at the end of July is:

July sales (a).....	$700,000
Percent uncollected (b)	60%
Accounts receivable (a) × (b)	$420,000

4. The required production for July is computed as follows:

	July
Budgeted sales in units	10,000
Add desired ending inventory*.....	2,400
Total needs.....	12,400
Less beginning inventory**	2,000
Required production	10,400

*August sales of 12,000 units × 20% = 2,400 units.
**July sales of 10,000 units × 20% = 2,000 units.

The Foundational 15 (continued)

5. The raw material purchases for July are computed as follows:

	July
Required production in units of finished goods	10,400
Units of raw materials needed per unit of finished goods	5
Units of raw materials needed to meet production	52,000
Add desired units of ending raw materials inventory*	6,100
Total units of raw materials needed	58,100
Less units of beginning raw materials inventory**	5,200
Units of raw materials to be purchased	52,900

*61,000 pounds × 10% = 6,100 pounds.
**52,000 pounds × 10% = 5,200 pounds.

6. The cost of raw material purchases for July is computed as follows:

Units of raw materials to be purchased (a)	52,900
Unit cost of raw materials (b)	$2.00
Cost of raw materials to be purchased (a) × (b)	$105,800

7. The estimated cash disbursements for materials purchases in July is computed as follows:

	July
June purchases:	
$88,880 × 70%	$62,216
July purchases:	
$105,800 × 30%	31,740
Total cash disbursements	$93,956

8. The accounts payable balance at the end of July is:

July purchases (a)	$105,800
Percent unpaid (b)	70%
Accounts payable (a) × (b)	$74,060

The Foundational 15 (continued)

9. The estimated raw materials inventory balance at the end of July is computed as follows:

Ending raw materials inventory (pounds) (a)	6,100
Cost per pound (b)	$2.00
Raw material inventory balance (a) × (b)	$12,200

10. The estimated direct labor cost for July is computed as follows:

	July
Required production in units	10,400
Direct labor hours per unit	× 2.0
Total direct labor-hours needed (a)	20,800
Direct labor cost per hour (b)	$15
Total direct labor cost (a) × (b)	$312,000

11. The estimated unit product cost is computed as follows:

	Quantity	*Cost*	*Total*
Direct materials	5 pounds	$2 per pound	$10.00
Direct labor	2 hours	$15 per hour	30.00
Manufacturing overhead	2 hours	$10 per hour	20.00
Unit product cost			$60.00

12. The estimated finished goods inventory balance at the end of July is computed as follows:

Ending finished goods inventory in units (a)	2,400
Unit product cost (b)	$60.00
Ending finished goods inventory (a) × (b)	$144,000

The Foundational 15 (continued)

13. The estimated cost of goods sold for July is computed as follows:

Unit sales (a)	10,000
Unit product cost (b)	$60.00
Estimated cost of goods sold (a) × (b)	$600,000

The estimated gross margin for July is computed as follows:

Total sales (a)	$700,000
Cost of goods sold (b)	600,000
Estimated gross margin (a) – (b)	$100,000

14. The estimated selling and administrative expense for July is computed as follows:

	July
Budgeted unit sales	10,000
Variable selling and administrative expense per unit	× $1.80
Total variable expense	$18,000
Fixed selling and administrative expenses	60,000
Total selling and administrative expenses	$78,000

15. The estimated net operating income for July is computed as follows:

Gross margin (a)	$100,000
Selling and administrative expenses (b)	78,000
Net operating income (a) – (b)	$ 22,000

Exercise 8-1 (20 minutes)

1.

	April	*May*	*June*	*Total*
February sales: $230,000 × 10%	$ 23,000			$ 23,000
March sales: $260,000 × 70%, 10%	182,000	$ 26,000		208,000
April sales: $300,000 × 20%, 70%, 10%.....	60,000	210,000	$ 30,000	300,000
May sales: $500,000 × 20%, 70%		100,000	350,000	450,000
June sales: $200,000 × 20%			40,000	40,000
Total cash collections	$265,000	$336,000	$420,000	$1,021,000

Notice that even though sales peak in May, cash collections peak in June. This occurs because the bulk of the company's customers pay in the month following sale. The lag in collections that this creates is even more pronounced in some companies. Indeed, it is not unusual for a company to have the least cash available in the months when sales are greatest.

2. Accounts receivable at June 30:

From May sales: $500,000 × 10%.....	$ 50,000
From June sales: $200,000 × (70% + 10%)	160,000
Total accounts receivable at June 30.....	$210,000

Exercise 8-2 (10 minutes)

	April	*May*	*June*	*Quarter*
Budgeted unit sales	50,000	75,000	90,000	215,000
Add desired units of ending finished goods inventory*	7,500	9,000	8,000	8,000
Total needs	57,500	84,000	98,000	223,000
Less units of beginning finished goods inventory	5,000	7,500	9,000	5,000
Required production in units	52,500	76,500	89,000	218,000

*10% of the following month's sales in units.

Exercise 8-3 (15 minutes)

	Quarter—Year 2				
	First	*Second*	*Third*	*Fourth*	*Year*
Required production in units of finished goods	60,000	90,000	150,000	100,000	400,000
Units of raw materials needed per unit of finished goods	× 3	× 3	× 3	× 3	× 3
Units of raw materials needed to meet production	180,000	270,000	450,000	300,000	1,200,000
Add desired units of ending raw materials inventory*	54,000	90,000	60,000	42,000	42,000
Total units of raw materials needed	234,000	360,000	510,000	342,000	1,242,000
Less units of beginning raw materials inventory	36,000	54,000	90,000	60,000	36,000
Units of raw materials to be purchased	198,000	306,000	420,000	282,000	1,206,000
Unit cost of raw materials	× $1.50	× $1.50	× $1.50	× $1.50	× $1.50
Cost of raw materials to purchased	$297,000	$459,000	$630,000	$423,000	$1,809,000

* Fourth quarter: 70,000 units × 3 grams per unit × 20% = 42,000 grams.

Exercise 8-4 (10 minutes)

The direct labor budget is as follows:

	1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Year*
Required production in units	8,000	6,500	7,000	7,500	29,000
Direct labor time per unit (hours)	× 0.35	× 0.35	× 0.35	× 0.35	× 0.35
Total direct labor-hours needed	2,800	2,275	2,450	2,625	10,150
Direct labor cost per hour	× $15.00	× $15.00	× $15.00	× $15.00	× $15.00
Total direct labor cost	$ 42,000	$ 34,125	$ 36,750	$ 39,375	$152,250

Exercise 8-5 (15 minutes)

1. Yuvwell Corporation
Manufacturing Overhead Budget

	1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Year*
Budgeted direct labor-hours	8,000	8,200	8,500	7,800	32,500
Variable manufacturing overhead rate	× $3.25	× $3.25	× $3.25	× $3.25	× $3.25
Variable manufacturing overhead	$26,000	$26,650	$27,625	$25,350	$105,625
Fixed manufacturing overhead	48,000	48,000	48,000	48,000	192,000
Total manufacturing overhead	74,000	74,650	75,625	73,350	297,625
Less depreciation	16,000	16,000	16,000	16,000	64,000
Cash disbursements for manufacturing overhead	$58,000	$58,650	$59,625	$57,350	$233,625

2.

Total budgeted manufacturing overhead for the year (a)	$297,625
Budgeted direct labor-hours for the year (b)	32,500
Predetermined overhead rate for the year (a) ÷ (b)	$9.16

Exercise 8-6 (15 minutes)

Weller Company
Selling and Administrative Expense Budget

	1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Year*
Budgeted unit sales	15,000	16,000	14,000	13,000	58,000
Variable selling and administrative expense per unit	× $2.50	× $2.50	× $2.50	× $2.50	× $2.50
Variable selling and administrative expense	$ 37,500	$ 40,000	$ 35,000	$ 32,500	$145,000
Fixed selling and administrative expenses:					
Advertising	8,000	8,000	8,000	8,000	32,000
Executive salaries	35,000	35,000	35,000	35,000	140,000
Insurance	5,000		5,000		10,000
Property taxes		8,000			8,000
Depreciation	20,000	20,000	20,000	20,000	80,000
Total fixed selling and administrative expenses	68,000	71,000	68,000	63,000	270,000
Total selling and administrative expenses	105,500	111,000	103,000	95,500	415,000
Less depreciation	20,000	20,000	20,000	20,000	80,000
Cash disbursements for selling and administrative expenses	$ 85,500	$ 91,000	$ 83,000	$ 75,500	$335,000

Exercise 8-7 (15 minutes)

Garden Depot
Cash Budget

	1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Year*
Beginning cash balance	$ 20,000	$ 10,000	$ 35,800	$ 25,800	$ 20,000
Total cash receipts.....	180,000	330,000	210,000	230,000	950,000
Total cash available.....	200,000	340,000	245,800	255,800	970,000
Less total cash disbursements.....	260,000	230,000	220,000	240,000	950,000
Excess (deficiency) of cash available over disbursements.....	(60,000)	110,000	25,800	15,800	20,000
Financing:					
Borrowings (at beginnings of quarters)*.....	70,000				70,000
Repayments (at ends of quarters).....		(70,000)			(70,000)
Interest§.....		(4,200)			(4,200)
Total financing.....	70,000	(74,200)			(4,200)
Ending cash balance.....	$ 10,000	$ 35,800	$ 25,800	$ 15,800	$ 15,800

* Since the deficiency of cash available over disbursements is $60,000, the company must borrow $70,000 to maintain the desired ending cash balance of $10,000.

§ $70,000 × 3% × 2 = $4,200.

Exercise 8-8 (10 minutes)

Gig Harbor Boating
Budgeted Income Statement

Sales (460 units × $1,950 per unit)	$897,000
Cost of goods sold (460 units × $1,575 per unit) ..	724,500
Gross margin.....	172,500
Selling and administrative expenses*	139,500
Net operating income	33,000
Interest expense.....	14,000
Net income.....	$ 19,000

*(460 units × $75 per unit) + $105,000 = $139,500.

Exercise 8-9 (15 minutes)

Mecca Copy
Budgeted Balance Sheet

Assets		
Current assets:		
Cash*	$12,200	
Accounts receivable	8,100	
Supplies inventory	3,200	
Total current assets		$23,500
Plant and equipment:		
Equipment	34,000	
Accumulated depreciation	(16,000)	
Plant and equipment, net		18,000
Total assets		$41,500
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable		$ 1,800
Stockholders' equity:		
Common stock	$ 5,000	
Retained earnings#	34,700	
Total stockholders' equity		39,700
Total liabilities and stockholders' equity		$41,500

*Plug figure.

#	Retained earnings, beginning balance	$28,000
	Add net income	11,500
		39,500
	Deduct dividends	4,800
	Retained earnings, ending balance	$34,700

Exercise 8-10 (45 minutes)

1. Production budget:

	July	*August*	*September*	*October*
Budgeted unit sales	35,000	40,000	50,000	30,000
Add desired units of ending finished goods inventory*	11,000	13,000	9,000	7,000
Total needs	46,000	53,000	59,000	37,000
Less units of beginning finished goods inventory	10,000	11,000	13,000	9,000
Required production in units	36,000	42,000	46,000	28,000

* October: 3,000 units + (20,000 units × 20%) = 7,000 units.

2. During July and August, the company is building inventories in anticipation of peak sales in September. Therefore, production exceeds sales during these months. In September and October, inventories are being reduced in anticipation of a forthcoming decrease in sales. Therefore, production is less than sales during these months.

Exercise 8-10 (continued)

3. Direct materials budget:

	July	*August*	*September*		*Third Quarter*
Required production in units of finished goods	36,000	42,000	46,000		124,000
Units of raw materials needed per unit of finished goods	× 3 cc	× 3 cc	× 3 cc		× 3 cc
Units of raw materials needed to meet production	108,000	126,000	138,000		372,000
Add desired units of ending raw materials inventory	63,000	69,000	42,000	*	42,000
Total units of raw materials needed.....	171,000	195,000	180,000		414,000
Less units of beginning raw materials inventory...	54,000	63,000	69,000		54,000
Units of raw materials to be purchased.....	117,000	132,000	111,000		360,000

* 28,000 units (October production) × 3 cc per unit = 84,000 cc;
84,000 cc × 1/2 = 42,000 cc.

As shown in part (1), production is greatest in September; however, as shown in the raw material purchases budget, purchases of materials are greatest a month earlier—in August. The reason for the large purchases of materials in August is that the materials must be on hand to support the heavy production scheduled for September.

Exercise 8-11 (20 minutes)

	Quarter (000 omitted)				
	1	*2*	*3*	*4*	*Year*
Beginning cash balance	$ 6 *	$ 5	$ 5	$ 5	$ 6
Add collections from customers	65	70	96 *	92	323 *
Total cash available	71 *	75	101	97	329
Less cash disbursements:					
Purchase of inventory	35 *	45 *	48	35 *	163
Selling and administrative expenses	28	30 *	30 *	25	113 *
Equipment purchases	8 *	8 *	10 *	10	36 *
Dividends	2 *	2 *	2 *	2 *	8
Total cash disbursements	73	85 *	90	72	320
Excess (deficiency) of cash available over disbursements	(2)*	(10)	11 *	25	9
Financing:					
Borrowings	7	15 *	0	0	22
Repayments (including interest)	0	0	(6)	(17)*	(23)
Total financing	7	15	(6)	(17)	(1)
Ending cash balance	$ 5	$ 5	$ 5	$ 8	$ 8

* Given.

Exercise 8-12 (30 minutes)

1. Schedule of expected cash collections:

	Month			
	July	*August*	*Sept.*	*Quarter*
From accounts receivable	$136,000			$136,000
From July sales:				
35% × 210,000	73,500			73,500
65% × 210,000		$136,500		136,500
From August sales:				
35% × 230,000		80,500		80,500
65% × 230,000			$149,500	149,500
From September sales:				
35% × 220,000			77,000	77,000
Total cash collections	$209,500	$217,000	$226,500	$653,000

2. a. Merchandise purchases budget:

	July	*August*	*Sept.*	*Total*
Budgeted cost of goods sold (60% of sales)	$126,000	$138,000	$132,000	$396,000
Add desired ending merchandise inventory*	41,400	39,600	43,200	43,200
Total needs	167,400	177,600	175,200	439,200
Less beginning merchandise inventory	62,000	41,400	39,600	62,000
Required purchases	$105,400	$136,200	$135,600	$377,200

*At July 31: $138,000 × 30% = $41,400. At September 30: $144,000 × 30% = $43,200.

b. Schedule of cash disbursements for purchases:

	July	*August*	*Sept.*	*Total*
From accounts payable	$ 71,100			$ 71,100
For July purchases	42,160	$ 63,240		105,400
For August purchases		54,480	$ 81,720	136,200
For September purchases			54,240	54,240
Total cash disbursements	$113,260	$117,720	$135,960	$366,940

Exercise 8-12 (continued)

3.

Beech Corporation
Income Statement
For the Quarter Ended September 30

Sales ($210,000 + $230,000 + $220,000)	$660,000
Cost of goods sold (Part 2a)	396,000
Gross margin	264,000
Selling and administrative expenses ($60,000 × 3 months)	180,000
Net operating income	$ 84,000

4.

Beech Corporation
Balance Sheet
September 30

Assets

Cash ($90,000 + $653,000 – $366,940 – ($55,000 × 3))	$211,060
Accounts receivable ($220,000 × 65%)	143,000
Inventory (Part 2a)	43,200
Plant and equipment, net ($210,000 – ($5,000 ×3))	195,000
Total assets	$592,260

Liabilities and Stockholders' Equity

Accounts payable ($135,600 × 60%)	$ 81,360
Common stock (Given)	327,000
Retained earnings ($99,900 + $84,000)	183,900
Total liabilities and stockholders' equity	$592,260

Exercise 8-13 (30 minutes)

1. Schedule of expected cash collections:

	Month			
	July	*August*	*September*	*Quarter*
From accounts receivable	$136,000			$136,000
From July sales:				
45% × 210,000	94,500			94,500
55% × 210,000		$115,500		115,500
From August sales:				
45% × 230,000		103,500		103,500
55% × 230,000			$126,500	126,500
From September sales:				
45% × 220,000			99,000	99,000
Total cash collections	$230,500	$219,000	$225,500	$675,000

2. a. Merchandise purchases budget:

	July	*August*	*Sept.*	*Total*
Budgeted cost of goods sold	$126,000	$138,000	$132,000	$396,000
Add desired ending merchandise inventory*	27,600	26,400	28,800	28,800
Total needs	153,600	164,400	160,800	424,800
Less beginning merchandise inventory	62,000	27,600	26,400	62,000
Required purchases	$ 91,600	$136,800	$134,400	$362,800

*At July 31: $138,000 × 20% = $27,600. At September 30: $144,000 × 20% = $28,800.

b. Schedule of cash disbursements for purchases:

	July	*August*	*Sept.*	*Total*
From accounts payable	$ 71,100			$ 71,100
For July purchases	27,480	$ 64,120		91,600
For August purchases		41,040	$ 95,760	136,800
For September purchases			40,320	40,320
Total cash disbursements	$ 98,580	$105,160	$136,080	$339,820

Exercise 8-13 (continued)

3.

Beech Corporation
Income Statement
For the Quarter Ended September 30

Sales ($210,000 + $230,000 + $220,000)	$660,000
Cost of goods sold (Part 2a)	396,000
Gross margin	264,000
Selling and administrative expenses ($60,000 × 3 months)	180,000
Net operating income	84,000
Interest expense	0
Net income	$ 84,000

4.

Beech Corporation
Balance Sheet
September 30

Assets

Cash ($90,000 + $675,000 – $339,820 – ($55,000 × 3))	$260,180
Accounts receivable ($220,000 × 55%)	121,000
Inventory (Part 2a)	28,800
Plant and equipment, net ($210,000 – ($5,000 ×3))	195,000
Total assets	$604,980

Liabilities and Stockholders' Equity

Accounts payable ($134,400 × 70%)	$ 94,080
Common stock (Given)	327,000
Retained earnings ($99,900 + $84,000)	183,900
Total liabilities and stockholders' equity	$604,980

Exercise 8-14 (30 minutes)

1.

Jessi Corporation
Sales Budget

	1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Year*
Budgeted unit sales	11,000	12,000	14,000	13,000	50,000
Selling price per unit	× $18.00	× $18.00	× $18.00	× $18.00	× $18.00
Total sales	$198,000	$216,000	$252,000	$234,000	$900,000

2.

Schedule of Expected Cash Collections

Beginning accounts receivable	$ 70,200				$ 70,200
1st Quarter sales (65%, 30%)	128,700	$ 59,400			188,100
2nd Quarter sales (65%, 30%)		140,400	$ 64,800		205,200
3rd Quarter sales (65%, 30%)			163,800	$ 75,600	239,400
4th Quarter sales (65%)				152,100	152,100
Total cash collections	$198,900	$199,800	$228,600	$227,700	$855,000

Exercise 8-14 (continued)

3.

Jessi Corporation
Production Budget

	1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Year*
Budgeted unit sales	11,000	12,000	14,000	13,000	50,000
Add desired units of ending finished goods inventory*	1,800	2,100	1,950	1,850	1,850
Total needs	12,800	14,100	15,950	14,850	51,850
Less units of beginning finished goods inventory**	1,650	1,800	2,100	1,950	1,650
Required production in units	11,150	12,300	13,850	12,900	50,200

* For end of first quarter: 12,000 units × 15% = 1,800 units.
** For beginning of first quarter: 11,000 units × 15% = 1,650 units.

Exercise 8-15 (30 minutes)

1.

Hruska Corporation
Direct Labor Budget

	1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Year*
Required production in units	12,000	10,000	13,000	14,000	49,000
Direct labor time per unit (hours)	0.2	0.2	0.2	0.2	0.2
Total direct labor-hours needed	2,400	2,000	2,600	2,800	9,800
Direct labor cost per hour	$16.00	$16.00	$16.00	$16.00	$16.00
Total direct labor cost	$38,400	$32,000	$41,600	$44,800	$156,800

2 and 3.

Hruska Corporation
Manufacturing Overhead Budget

	1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Year*
Budgeted direct labor-hours	2,400	2,000	2,600	2,800	9,800
Variable manufacturing overhead rate	$1.75	$1.75	$1.75	$1.75	$1.75
Variable manufacturing overhead	$ 4,200	$ 3,500	$ 4,550	$ 4,900	$ 17,150
Fixed manufacturing overhead	86,000	86,000	86,000	86,000	344,000
Total manufacturing overhead	90,200	89,500	90,550	90,900	361,150
Less depreciation	23,000	23,000	23,000	23,000	92,000
Cash disbursements for manufacturing overhead	$67,200	$66,500	$67,550	$67,900	$269,150

Exercise 8-16 (30 minutes)

1 and 2.

Zan Corporation
Direct Materials Budget

	1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Year*
Required production in units of finished goods	5,000	8,000	7,000	6,000	26,000
Units of raw materials needed per unit of finished goods	× 8	× 8	× 8	× 8	× 8
Units of raw materials needed to meet production	40,000	64,000	56,000	48,000	208,000
Add desired units of ending raw materials inventory*	16,000	14,000	12,000	8,000	8,000
Total units of raw materials needed	56,000	78,000	68,000	56,000	216,000
Less units of beginning raw materials inventory	6,000	16,000	14,000	12,000	6,000
Units of raw materials to be purchased	50,000	62,000	54,000	44,000	210,000
Unit cost of raw materials	× $1.20	× $1.20	× $1.20	× $1.20	× $1.20
Cost of raw materials to be purchased	$60,000	$74,400	$64,800	$52,800	$252,000

* End of 1st quarter: 64,000 grams × 25% = 16,000 grams.

Exercise 8-16 (continued)

3.

Zan Corporation
Schedule of Expected Cash Disbursements for Materials

	1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Year*
Beginning accounts payable	$ 2,880				$ 2,880
1st Quarter purchases.....	36,000	$24,000			60,000
2nd Quarter purchases.....		44,640	$29,760		74,400
3rd Quarter purchases			38,880	$25,920	64,800
4th Quarter purchases				31,680	31,680
Total cash disbursements for materials.....	$38,880	$68,640	$68,640	$57,600	$233,760

4.

Zan Corporation
Direct Labor Budget

	1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Year*
Required production in units.....	5,000	8,000	7,000	6,000	26,000
Direct labor-hours per unit	× 0.20	× 0.20	× 0.20	× 0.20	× 0.20
Total direct labor-hours needed	1,000	1,600	1,400	1,200	5,200
Direct labor cost per hour.....	× $15.00	× $15.00	× $15.00	× $15.00	× $15.00
Total direct labor cost	$ 15,000	$ 24,000	$ 21,000	$ 18,000	$ 78,000

Exercise 8-17 (60 minutes)

1a. The budgeted cash collections are computed as follows:

Cash sales ($240,000 × 35%)	$ 84,000
September credit sales collected in October	90,000
October credit sales collected in October ($240,000 × 65% × 40%)	62,400
Total cash collections	$236,400

1b. The budgeted merchandise purchases are computed as follows:

Budgeted cost of goods sold ($240,000 × 45%)	$108,000
Add: desired ending merchandise inventory ($250,000 × 45% × 30%)	33,750
Total needs	141,750
Less: beginning merchandise inventory	32,400
Required purchases	$109,350

1c. The budgeted cash disbursements for merchandise purchases are computed as follows:

September credit purchases paid in October	$ 73,000
October credit purchases paid in October ($109,350 × 30%)	32,805
Total cash disbursements for merchandise purchases	$105,805

1d. The net operating income is computed as follows:

Sales	$240,000
Cost of goods sold ($240,000 × 45%)	108,000
Gross margin	132,000
Selling and administrative expenses ($78,000 + $2,000)	80,000
Net operating income	$ 52,000

Exercise 8-17 (continued)

1e. The budgeted balance sheet is computed as follows:

Wheeling Company
Balance Sheet
October 31

Assets	
Cash ($59,000 + $236,400 – $105,805 – $78,000)	$111,595
Accounts receivable ($240,000 × 65% × 60%)	93,600
Inventory ($250,000 × 45% × 30%)	33,750
Buildings and equipment, (net) ($214,000 – $2,000)	212,000
Total assets	$450,945
Liabilities and Stockholders' Equity	
Accounts payable ($109,350 × 70%)	$ 76,545
Common stock	216,000
Retained earnings ($106,400 + $52,000)	158,400
Total liabilities and stockholders' equity	$450,945

2a. The budgeted cash collections are computed as follows:

Cash sales ($240,000 × 35%)	$ 84,000
September credit sales collected in October	90,000
October credit sales collected in October ($240,000 × 65% × 50%)	78,000
Total cash collections	$252,000

2b. The budgeted merchandise purchases are computed as follows:

Budgeted cost of goods sold ($240,000 × 45%)	$108,000
Add: desired ending merchandise inventory ($250,000 × 45% × 10%)	11,250
Total needs	119,250
Less: beginning merchandise inventory	32,400
Required purchases	$ 86,850

Exercise 8-17 (continued)

2c. The budgeted cash disbursements for merchandise purchases are computed as follows:

September credit purchases paid in October	$73,000
October credit purchases paid in October ($86,850 × 20%)	17,370
Total cash disbursements for merchandise purchases	$90,370

2d. The net operating income is computed as follows:

Sales	$240,000
Cost of goods sold ($240,000 × 45%)	108,000
Gross margin	132,000
Selling and administrative expenses ($78,000 + $2,000)	80,000
Net operating income	$ 52,000

2e. The budgeted balance sheet is computed as follows:

Wheeling Company
Balance Sheet
October 31

Assets	
Cash ($59,000 + $252,000 – $90,370 – $78,000)	$142,630
Accounts receivable ($240,000 × 65% × 50%)	78,000
Inventory ($250,000 × 45% × 10%)	11,250
Buildings and equipment, (net) ($214,000 – $2,000)	212,000
Total assets	$443,880
Liabilities and Stockholders' Equity	
Accounts payable ($86,850 × 80%)	$ 69,480
Common stock	216,000
Retained earnings ($106,400 + $52,000)	158,400
Total liabilities and stockholders' equity	$443,880

Exercise 8-17 (continued)

3. Students may be inclined to conclude that the financial projections in requirement 2 indicate a decline in performance for two reasons. First, the net operating income in the two scenarios is the same. Second, the total assets dropped by $7,065.

   This interpretation overlooks the importance of cash flows and working capital management. For professors wishing to explore this discussion further, we recommend computing and comparing the operating cycle (as discussed in the chapter titled Financial Statement Analysis) for requirements 1 and 2.

   The accounts receivable turnover in requirement 1 is 1.70 ($156,000 ÷ $91,800). The average collection period is 17.65 days (30 days ÷ 1.70). The inventory turnover is 3.27 ($108,000 ÷ $33,075). The average sale period is 9.17 days (30 ÷ 3.27). The operating cycle is 26.82 days (17.65 days + 9.17 days).

   The accounts receivable turnover in requirement 2 is 1.86 ($156,000 ÷ $84,000). The average collection period is 16.13 days (30 days ÷ 1.86). The inventory turnover is 4.95 ($108,000 ÷ $21,825). The average sale period is 6.06 days (30 ÷ 4.95). The operating cycle is 22.19 days (16.13 days + 6.06 days).

   The operating cycle drops by 4.63 days in requirement 2.

Exercise 8-18 (30 minutes)

1a. The company's budgeted sales are computed as follows:

Cash collections in July (a)	$77,000
June sales collected in July (b)	$50,000
July sales collected in July (a) – (b)	$27,000
July sales collected in July (a)	$27,000
Percentage of sales collected in month of sale (b)	30%
July sales (a) ÷ (b)	$90,000

1b. The company's budgeted merchandise purchases are computed as follows:

Cash paid for merchandise purchases in July (a)	$44,500
June purchases paid in July (b)	$35,300
July purchases paid in July (a) – (b)	$9,200
July purchases paid in July (a)	$9,200
Percentage of purchases paid in month of purchase (b)	20%
July merchandise purchases (a) ÷ (b)	$46,000

1c. The company's budgeted cost of goods sold is computed as follows:

Merchandise purchases in July	$46,000
Beginning merchandise inventory in July	30,000
Total needs in July	$76,000
Total needs in July (a)	$76,000
Ending inventory in July (b)	$22,000
Cost of goods sold in July (a) – (b)	$54,000

Exercise 8-18 (continued)

1d. The company's budgeted net operating income is computed as follows:

Sales	$90,000
Cost of goods sold	54,000
Gross margin	36,000
Selling and administrative expenses ($15,000 + $3,000)	18,000
Net operating income	$18,000

2. The budgeted balance sheet is computed as follows:

Wolfpack Company
Balance Sheet
July 31

Assets	
Cash ($75,000 + $77,000 – $44,500 – $15,000)	$ 92,500
Accounts receivable ($90,000 × 70%)	63,000
Inventory	22,000
Buildings and equipment, (net) ($150,000 – $3,000)	147,000
Total assets	$324,500
Liabilities and Stockholders' Equity	
Accounts payable ($46,000 × 80%)	$ 36,800
Common stock	100,000
Retained earnings ($169,700 + $18,000)	187,700
Total liabilities and stockholders' equity	$324,500

Problem 8-19 (45 minutes)

1. Schedule of cash collections:

Cash sales—May	$ 60,000
Collections on account receivable:	
April 30 balance	54,000
May sales (50% × ($200,000 – $60,000))	70,000
Total cash collections	$184,000

2. Schedule of expected cash disbursements:

Schedule of cash disbursements for purchases:

April 30 accounts payable balance	$ 63,000
May purchases (40% × $120,000)	48,000
Total cash disbursements	$111,000

3.

Minden Company
Cash Budget
For the Month of May

Beginning cash balance	$ 9,000
Add collections from customers (above)	184,000
Total cash available	193,000
Less cash disbursements:	
Purchase of inventory (above)	111,000
Selling and administrative expenses	72,000
Purchases of equipment	6,500
Total cash disbursements	189,500
Excess of cash available over disbursements	3,500
Financing:	
Borrowing—note	20,000
Repayments—note	(14,500)
Interest	(100)
Total financing	5,400
Ending cash balance	$ 8,900

Problem 8-19 (continued)

4.

Minden Company
Budgeted Income Statement
For the Month of May

Sales		$200,000
Cost of goods sold:		
Beginning inventory	$ 30,000	
Add purchases	120,000	
Goods available for sale	150,000	
Ending inventory	40,000	
Cost of goods sold		110,000
Gross margin		90,000
Selling and administrative expenses ($72,000 + $2,000)		74,000
Net operating income		16,000
Interest expense		100
Net income		$ 15,900

5.

Minden Company
Budgeted Balance Sheet
May 31

Assets	
Cash (see requirement 3)	$ 8,900
Accounts receivable (50% × $140,000)	70,000
Inventory	40,000
Buildings and equipment, net of depreciation ($207,000 + $6,500 – $2,000)	211,500
Total assets	$330,400
Liabilities and Stockholders' Equity	
Accounts payable (60% × 120,000)	$ 72,000
Note payable	20,000
Common stock	180,000
Retained earnings ($42,500 + $15,900)	58,400
Total liabilities and stockholders' equity	$330,400

Problem 8-20 (45 minutes)

1. Schedule of cash collections:

Cash sales—May	$ 60,000
Collections on account receivable:	
April 30 balance	54,000
May sales (60% × ($220,000 – $60,000))	96,000
Total cash collections	$210,000

2. Schedule of expected cash disbursements:

Schedule of cash payments for purchases:

April 30 accounts payable balance	$ 63,000
May purchases (50% × $120,000)	60,000
Total cash disbursements	$123,000

3.

Minden Company
Cash Budget
For the Month of May

Beginning cash balance	$ 9,000
Add collections from customers (above)	210,000
Total cash available	219,000
Less cash disbursements:	
Purchase of inventory (above)	123,000
Selling and administrative expenses	72,000
Purchases of equipment	6,500
Total cash disbursements	201,500
Excess of cash available over disbursements	17,500
Financing:	
Borrowing—note	20,000
Repayments—note	(14,500)
Interest	(100)
Total financing	5,400
Ending cash balance	$ 22,900

Problem 8-20 (continued)

4.

Minden Company
Budgeted Income Statement
For the Month of May

Sales		$220,000
Cost of goods sold:		
Beginning inventory	$ 30,000	
Add purchases	120,000	
Goods available for sale	150,000	
Ending inventory	40,000	
Cost of goods sold		110,000
Gross margin		110,000
Selling and administrative expenses ($72,000 + $2,000)		74,000
Net operating income		36,000
Interest expense		100
Net income		$ 35,900

5.

Minden Company
Budgeted Balance Sheet
May 31

Assets	
Cash (see requirement 3)	$ 22,900
Accounts receivable (40% × $160,000)	64,000
Inventory	40,000
Buildings and equipment, net of depreciation ($207,000 + $6,500 – $2,000)	211,500
Total assets	$338,400
Liabilities and Stockholders' Equity	
Accounts payable (50% × 120,000)	$ 60,000
Note payable	20,000
Capital stock	180,000
Retained earnings ($42,500 + $35,900)	78,400
Total liabilities and stockholders' equity	$338,400

Problem 8-21 (30 minutes)

1. December cash sales		$ 83,000
Collections on account:		
October sales: $400,000 × 18%		72,000
November sales: $525,000 × 60%		315,000
December sales: $600,000 × 20%		120,000
Total cash collections		$590,000
2. Payments to suppliers:		
November purchases (accounts payable)		$161,000
December purchases: $280,000 × 30%		84,000
Total cash disbursements		$245,000

3.

Ashton Company
Cash Budget
For the Month of December

Beginning cash balance		$ 40,000
Add collections from customers		590,000
Total cash available		630,000
Less cash disbursements:		
Payments to suppliers for inventory	$245,000	
Selling and administrative expenses*	380,000	
New web server	76,000	
Dividends paid	9,000	
Total cash disbursements		710,000
Excess (deficiency) of cash available over disbursements		(80,000)
Financing:		
Borrowings		100,000
Repayments		0
Interest		0
Total financing		100,000
Ending cash balance		$ 20,000

*$430,000 – $50,000 = $380,000.

Problem 8-22 (30 minutes)

1. The budget at Springfield is an imposed "top-down" budget that fails to consider both the need for realistic data and the human interaction essential to an effective budgeting/control process. The President has not given any basis for his goals, so one cannot know whether they are realistic for the company. True participation of company employees in preparation of the budget is minimal and limited to mechanical gathering and manipulation of data. This suggests there will be little enthusiasm for implementing the budget.

   The sales by product line should be based on an accurate sales forecast of the potential market. Therefore, the sales by product line should have been developed first to derive the sales target rather than the reverse.

   The initial meeting between the Vice President of Finance, Executive Vice President, Marketing Manager, and Production Manager should have been held earlier. This meeting was held too late in the budget process.

2. Springfield should consider adopting a "bottom-up" budget process. This means that the people responsible for performance under the budget would participate in the decisions by which the budget is established. In addition, this approach requires initial and continuing involvement of sales, financial, and production personnel to define sales and profit goals that are realistic within the constraints under which the company operates. Although time consuming, the approach should produce a more acceptable, honest, and workable goal-control mechanism.

   The sales forecast should be developed considering internal sales-forecasts as well as external factors. Costs within departments should be divided into fixed and variable, controllable and noncontrollable, discretionary and nondiscretionary. Flexible budgeting techniques could then allow departments to identify costs that can be modified in the planning process.

Problem 8-22 (continued)

3. The functional areas should not necessarily be expected to cut costs when sales volume falls below budget. The time frame of the budget (one year) is short enough so that many costs are relatively fixed. For costs that are fixed, there is little hope for a reduction as a consequence of short-run changes in volume. However, the functional areas should be expected to cut costs should sales volume fall below target when:

   a. control is exercised over the costs within their function.

   b. budgeted costs were more than adequate for the originally targeted sales, i.e., slack was present.

   c. budgeted costs vary to some extent with changes in sales.

   d. there are discretionary costs that can be delayed or omitted with no serious effect on the department.

(Adapted unofficial CMA Solution)

Problem 8-23 (45 minutes)

1. Schedule of expected cash collections:

	Month			
	April	*May*	*June*	*Quarter*
From accounts receivable	$120,000	$ 16,000		$136,000
From April sales:				
30% × $300,000	90,000			90,000
60% × $300,000		180,000		180,000
8% × $300,000			$ 24,000	24,000
From May sales:				
30% × $400,000		120,000		120,000
60% × $400,000			240,000	240,000
From June sales:				
30% × $250,000			75,000	75,000
Total cash collections	$210,000	$316,000	$339,000	$865,000

Problem 8-23 (continued)

2. Cash budget:

	Month			
	April	*May*	*June*	*Quarter*
Beginning cash balance	$ 24,000	$ 22,000	$ 26,000	$ 24,000
Add receipts:				
Collections from customers	210,000	316,000	339,000	865,000
Total cash available	234,000	338,000	365,000	889,000
Less cash disbursements:				
Merchandise purchases	140,000	210,000	160,000	510,000
Payroll	20,000	20,000	18,000	58,000
Lease payments	22,000	22,000	22,000	66,000
Advertising	60,000	60,000	50,000	170,000
Equipment purchases	—	—	65,000	65,000
Total cash disbursements	242,000	312,000	315,000	869,000
Excess (deficiency) of cash available over disbursements	(8,000)	26,000	50,000	20,000
Financing:				
Borrowings	30,000	—	—	30,000
Repayments	—	—	(30,000)	(30,000)
Interest	—	—	(1,200)	(1,200)
Total financing	30,000	—	(31,200)	(1,200)
Ending cash balance	$ 22,000	$ 26,000	$ 18,800	$ 18,800

3. If the company needs a minimum cash balance of $20,000 to start each month, the loan cannot be repaid in full by June 30. Some portion of the loan balance will have to be carried over to July.

Problem 8-24 (60 minutes)

1. Collections on sales:

	April	*May*	*June*	*Quarter*
Cash sales (@ 20%).....	$120,000	$180,000	$100,000	$ 400,000
Sales on account:				
February: $200,000 × 80% × 20%.....	32,000			32,000
March: $300,000 × 80% × 70%, 20%	168,000	48,000		216,000
April: $600,000 × 80% × 10%, 70%, 20%	48,000	336,000	96,000	480,000
May: $900,000 × 80% × 10%, 70%.....		72,000	504,000	576,000
June: $500,000 × 80% × 10%.....			40,000	40,000
Total cash collections.....	$368,000	$636,000	$740,000	$1,744,000

2. a. Merchandise purchases budget:

	April	*May*	*June*	*July*
Budgeted cost of goods sold..	$420,000	$630,000	$350,000	$280,000
Add desired ending merchandise inventory*.....	126,000	70,000	56,000	
Total needs.....	546,000	700,000	406,000	
Less beginning merchandise inventory.....	84,000	126,000	70,000	
Required inventory purchases	$462,000	$574,000	$336,000	

*20% of the next month's budgeted cost of goods sold.

b. Schedule of expected cash disbursements for merchandise purchases:

	April	*May*	*June*	*Quarter*
Beginning accounts payable.....	$126,000			$ 126,000
April purchases.....	231,000	$231,000		462,000
May purchases		287,000	$287,000	574,000
June purchases			168,000	168,000
Total cash disbursements	$357,000	$518,000	$455,000	$1,330,000

Problem 8-24 (continued)

3.

Garden Sales, Inc.
Cash Budget
For the Quarter Ended June 30

	April	*May*	*June*	*Quarter*
Beginning cash balance	$ 52,000	$ 40,000	$ 40,000	$ 52,000
Add collections from customers	368,000	636,000	740,000	1,744,000
Total cash available	420,000	676,000	780,000	1,796,000
Less cash disbursements:				
Purchases for inventory	357,000	518,000	455,000	1,330,000
Selling expenses	79,000	120,000	62,000	261,000
Administrative expenses	25,000	32,000	21,000	78,000
Land purchases	—	16,000	—	16,000
Dividends paid	49,000	—	—	49,000
Total cash disbursements	510,000	686,000	538,000	1,734,000
Excess (deficiency) of cash available over disbursements	(90,000)	(10,000)	242,000	62,000
Financing:				
Borrowings	130,000	50,000	0	180,000
Repayments	0	0	(180,000)	(180,000)
Interest ($130,000 × 1% × 3 + $50,000 × 1% × 2)	0	0	(4,900)	(4,900)
Total financing	130,000	50,000	(184,900)	(4,900)
Ending cash balance	$ 40,000	$ 40,000	$ 57,100	$ 57,100

Problem 8-25 (60 minutes)

1. Collections on sales:

	April	*May*	*June*	*Quarter*
Cash sales	$120,000	$180,000	$100,000	$ 400,000
Sales on account:				
February: $200,000 × 80% × 20%	32,000			32,000
March: $300,000 × 80% × 70%, 20%	168,000	48,000		216,000
April: $600,000 × 80% × 25%, 65%, 10%	120,000	312,000	48,000	480,000
May: $900,000 × 80% × 25%, 65%		180,000	468,000	648,000
June: $500,000 × 80% × 25%			100,000	100,000
Total cash collections	$440,000	$720,000	$716,000	$1,876,000

2. a. Merchandise purchases budget:

	April	*May*	*June*	*July*
Budgeted cost of goods sold	$420,000	$630,000	$350,000	$280,000
Add desired ending merchandise inventory*	94,500	52,500	42,000	
Total needs	514,500	682,500	392,000	
Less beginning merchandise inventory	84,000	94,500	52,500	
Required inventory purchases	$430,500	$588,000	$339,500	

*15% of the next month's budgeted cost of goods sold.

b. Schedule of expected cash disbursements for merchandise purchases:

	April	*May*	*June*	*Quarter*
Beginning accounts payable	$126,000			$ 126,000
April purchases	215,250	$215,250		430,500
May purchases		294,000	$294,000	588,000
June purchases			169,750	169,750
Total cash disbursements	$341,250	$509,250	$463,750	$1,314,250

Problem 8-25 (continued)

3.

Garden Sales, Inc.
Cash Budget
For the Quarter Ended June 30

	April	*May*	*June*	*Quarter*
Beginning cash balance	$ 52,000	$ 40,750	$ 83,500	$ 52,000
Add collections from customers	440,000	720,000	716,000	1,876,000
Total cash available	492,000	760,750	799,500	1,928,000
Less cash disbursements:				
Purchases for inventory	341,250	509,250	463,750	1,314,250
Selling expenses	79,000	120,000	62,000	261,000
Administrative expenses	25,000	32,000	21,000	78,000
Land purchases	—	16,000	—	16,000
Dividends paid	49,000	—	—	49,000
Total cash disbursements	494,250	677,250	546,750	1,718,250
Excess (deficiency) of cash available over disbursements	(2,250)	83,500	252,750	209,750
Financing:				
Borrowings	43,000	0	0	43,000
Repayments	0	0	(43,000)	(43,000)
Interest ($43,000 × 1% × 3)	0	0	(1,290)	(1,290)
Total financing	43,000	0	(44,290)	(1,290)
Ending cash balance	$ 40,750	$ 83,500	$ 208,460	$ 208,460

4. Collecting accounts receivable sooner and reducing inventory levels reduces the company's borrowing from $180,000 to $43,000. It also reduces the company's interest expense from $4,900 to $1,290.

Problem 8-26 (45 minutes)

1. a. The reasons that Marge Atkins and Pete Granger use budgetary slack include the following:

   - These employees are hedging against the unexpected (reducing uncertainty/risk).
   - The use of budgetary slack allows employees to exceed expectations and/or show consistent performance. This is particularly important when performance is evaluated on the basis of actual results versus budget.
   - Employees are able to blend personal and organizational goals through the use of budgetary slack as good performance generally leads to higher salaries, promotions, and bonuses.

   b. The use of budgetary slack can adversely affect Atkins and Granger by:

   - limiting the usefulness of the budget to motivate their employees to top performance.
   - affecting their ability to identify trouble spots and take appropriate corrective action.
   - reducing their credibility in the eyes of management.

   Also, the use of budgetary slack may affect management decision-making as the budgets will show lower contribution margins (lower sales, higher expenses). Decisions regarding the profitability of product lines, staffing levels, incentives, etc., could have an adverse effect on Atkins' and Granger's departments.

Problem 8-26 (continued)

2. The use of budgetary slack, particularly if it has a detrimental effect on the company, may be unethical. In assessing the situation, the specific standards contained in "Standards of Ethical Conduct for Management Accountants" that should be considered are listed below.

   Competence
   Clear reports using relevant and reliable information should be prepared.

   Confidentiality
   The standards of confidentiality do not apply in this situation.

   Integrity

   - Any activity that subverts the legitimate goals of the company should be avoided.
   - Favorable as well as unfavorable information should be communicated.

   Objectivity

   - Information should be fairly and objectively communicated.
   - All relevant information should be disclosed.

   (Unofficial CMA Solution)

Problem 8-27 (45 minutes)

1. The expected cash collections are calculated as follows:

	April	*May*	*June*	*Total*
Cash sales.....	$ 60,000	$ 66,000	$ 78,000	$204,000
March credit sales collected.....	36,000			36,000
April credit sales collected: $40,000 × 20%, 80%.....	8,000	32,000		40,000
May credit sales collected: $44,000 × 20%, 80%.....		8,800	35,200	44,000
June credit sales collected: $52,000 × 20%			10,400	10,400
Total cash collections	$104,000	$106,800	$123,600	$334,400

2. The budgeted merchandise purchases are calculated as follows:

	April	*May*	*June*	*Total*
Cost of goods sold	$ 60,000	$ 66,000	$ 78,000	$204,000
Add: desired ending merchandise inventory*	43,000	49,000	52,000	52,000
Total needs	103,000	115,000	130,000	256,000
Less: beginning merchandise inventory	40,000	43,000	49,000	40,000
Required purchases.....	$ 63,000	$ 72,000	$ 81,000	$216,000

* April: $66,000 × 50% + $10,000 = $43,000
May: $78,000 × 50% + $10,000 = $49,000
June: $140,000 × 60% × 50% + $10,000 = $52,000

Problem 8-27 (continued)

3. The budgeted cash disbursements for merchandise purchases are calculated as follows:

	April	*May*	*June*	*Total*
Cash purchases	$ 6,300	$ 7,200	$ 8,100	$21,600
March purchases paid....	51,300			51,300
April credit purchases paid: $63,000 × 90% .		56,700		56,700
May credit purchases paid: $72,000 × 90% .			64,800	64,800
Total cash disbursed.....	$57,600	$63,900	$72,900	$194,400

4. The budgeted balance sheet is calculated as follows:

Deacon Company
Balance Sheet
June 30

Assets	
Cash ($55,000 + $334,400 – $194,400 – $48,000)	$147,000
Accounts receivable ($130,000 × 40% × 80%)	41,600
Inventory (see requirement 2)	52,000
Buildings and equipment, (net) ($100,000 – $3,000).....	97,000
Total assets	$337,600
Liabilities and Stockholders' Equity	
Accounts payable ($81,000 – $8,100).....	$ 72,900
Common stock	70,000
Retained earnings ($109,700 + $25,000 + $27,500 + $32,500).....	194,700
Total liabilities and stockholders' equity	$337,600

Problem 8-28 (60 minutes)

1. a. Schedule of expected cash collections:

	Next Year's Quarter				
	First	*Second*	*Third*	*Fourth*	*Total*
Current year—Fourth quarter sales:					
$200,000 × 33%.....	$ 66,000				$ 66,000
Next year—First quarter sales:					
$300,000 × 65%.....	195,000				195,000
$300,000 × 33%.....		$ 99,000			99,000
Next year—Second quarter sales:					
$400,000 × 65%.....		260,000			260,000
$400,000 × 33%.....			$132,000		132,000
Next year—Third quarter sales:					
$500,000 × 65%.....			325,000		325,000
$500,000 × 33%.....				$165,000	165,000
Next year—Fourth quarter sales:					
$200,000 × 65%.....				130,000	130,000
Total cash collections	$261,000	$359,000	$457,000	$295,000	$1,372,000

Problem 8-28 (continued)

2. Schedule of expected cash disbursements for merchandise purchases for next year:

	Quarter				
	First	*Second*	*Third*	*Fourth*	*Total*
Current year—Fourth quarter purchases:					
$126,000 × 20%.....	$ 25,200				$ 25,200
Next year—First quarter purchases:					
$186,000 × 80%.....	148,800				148,800
$186,000 × 20%.....		$ 37,200			37,200
Next year—Second quarter purchases:					
$246,000 × 80%.....		196,800			196,800
$246,000 × 20%.....			$ 49,200		49,200
Next year—Third quarter purchases:					
$305,000 × 80%.....			244,000		244,000
$305,000 × 20%.....				$ 61,000	61,000
Next year—Fourth quarter purchases:					
$126,000 × 80%.....				100,800	100,800
Total cash disbursements.....	$174,000	$234,000	$293,200	$161,800	$863,000

Problem 8-28 (continued)

3. Budgeted cash disbursements for selling and administrative expenses for next year:

	Quarter				
	First	*Second*	*Third*	*Fourth*	*Year*
Budgeted sales in dollars	$300,000	$400,000	$500,000	$200,000	$1,400,000
Variable selling and administrative expense rate	× 15%	× 15%	× 15%	× 15%	× 15%
Variable selling and administrative expense	$45,000	$ 60,000	$ 75,000	$30,000	$210,000
Fixed selling and administrative expenses	50,000	50,000	50,000	50,000	200,000
Total selling and administrative expenses	95,000	110,000	125,000	80,000	410,000
Less depreciation	20,000	20,000	20,000	20,000	80,000
Cash disbursements for selling and administrative expenses	$75,000	$ 90,000	$105,000	$60,000	$330,000

Problem 8-28 (continued)

4. Cash budget for next year:

	Quarter				
	First	*Second*	*Third*	*Fourth*	*Year*
Beginning cash balance	$ 10,000	$ 12,000	$ 10,000	$ 10,800	$ 10,000
Add collections from customers	261,000	359,000	457,000	295,000	1,372,000
Total cash available	271,000	371,000	467,000	305,800	1,382,000
Less cash disbursements:					
Merchandise purchases	174,000	234,000	293,200	161,800	863,000
Selling and administrative expenses (above)	75,000	90,000	105,000	60,000	330,000
Dividends	10,000	10,000	10,000	10,000	40,000
Land	—	75,000	48,000	—	123,000
Total cash disbursements	259,000	409,000	456,200	231,800	1,356,000
Excess (deficiency) of cash available over disbursements	12,000	(38,000)	10,800	74,000	26,000
Financing:					
Borrowings	0	48,000	0	0	48,000
Repayments	0	0	0	(48,000)	(48,000)
Interest ($48,000 × 2.5% × 3)	0	0	0	(3,600)	(3,600)
Total financing	0	48,000	0	(51,600)	(3,600)
Ending cash balance	$ 12,000	$ 10,000	$ 10,800	$ 22,400	$ 22,400

Problem 8-29 (120 minutes)

1. Schedule of expected cash collections:

	April	*May*	*June*	*Quarter*
Cash sales	$36,000 *	$43,200	$54,000	$133,200
Credit sales[1]	20,000 *	24,000	28,800	72,800
Total collections	$56,000 *	$67,200	$82,800	$206,000

[1]40% of the preceding month's sales.
* Given.

2. Merchandise purchases budget:

	April	*May*	*June*	*Quarter*
Budgeted cost of goods sold[1]	$45,000 *	$ 54,000 *	$67,500	$166,500
Add desired ending merchandise inventory[2]	43,200 *	54,000	28,800 *	28,800
Total needs	88,200 *	108,000	96,300	195,300
Less beginning merchandise inventory .	36,000 *	43,200	54,000	36,000
Required purchases	$52,200 *	$ 64,800	$42,300	$159,300

[1]For April sales: $60,000 sales × 75% cost ratio = $45,000.

[2]At April 30: $54,000 × 80% = $43,200. At June 30: July sales $48,000 × 75% cost ratio × 80% = $28,800.
* Given.

Schedule of expected cash disbursements—merchandise purchases

	April	*May*	*June*	*Quarter*
March purchases	$21,750 *			$ 21,750 *
April purchases	26,100 *	$26,100 *		52,200 *
May purchases		32,400	$32,400	64,800
June purchases			21,150	21,150
Total disbursements	$47,850 *	$58,500	$53,550	$159,900

* Given.

Problem 8-29 (continued)

3. Cash budget:

	April		*May*	*June*	*Quarter*
Beginning cash balance	$ 8,000	*	$ 4,350	$ 4,590	$ 8,000
Add collections from customers	56,000	*	67,200	82,800	206,000
Total cash available	64,000	*	71,550	87,390	214,000
Less cash disbursements:					
For inventory	47,850	*	58,500	53,550	159,900
For expenses	13,300	*	15,460	18,700	47,460
For equipment	1,500	*	0	0	1,500
Total cash disbursements	62,650	*	73,960	72,250	208,860
Excess (deficiency) of cash available over disbursements	1,350	*	(2,410)	15,140	5,140
Financing:					
Borrowings	3,000		7,000	0	10,000
Repayments	0		0	(10,000)	(10,000)
Interest ($3,000 × 1% × 3 + $7,000 × 1% × 2)	0		0	(230)	(230)
Total financing	3,000		7,000	(10,230)	(230)
Ending cash balance	$ 4,350		$ 4,590	$ 4,910	$ 4,910

* Given.

Problem 8-29 (continued)

4.

Shilow Company
Income Statement
For the Quarter Ended June 30

Sales ($60,000 + $72,000 + $90,000)		$222,000
Cost of goods sold:		
Beginning inventory (Given)	$ 36,000	
Add purchases (see requirement 2)	159,300	
Goods available for sale	195,300	
Ending inventory (see requirement 2)	28,800	166,500 *
Gross margin		55,500
Selling and administrative expenses:		
Commissions (12% of sales)	26,640	
Rent ($2,500 × 3)	7,500	
Depreciation ($900 × 3)	2,700	
Other expenses (6% of sales)	13,320	50,160
Net operating income		5,340
Interest expense (see requirement 3)		230
Net income		$ 5,110

* A simpler computation would be: $222,000 × 75% = $166,500.

Problem 8-29 (continued)

5.

Shilow Company
Balance Sheet
June 30

Assets		
Current assets:		
Cash (see requirement 3)		$ 4,910
Accounts receivable ($90,000 × 40%)		36,000
Inventory (see requirement 2)		28,800
Total current assets		69,710
Building and equipment—net ($120,000 + $1,500 – $2,700)		118,800
Total assets		$188,510
Liabilities and Stockholders' Equity		
Accounts payable (Part 2: $42,300 × 50%)		$ 21,150
Stockholders' equity:		
Common stock (Given)	$150,000	
Retained earnings*	17,360	167,360
Total liabilities and stockholders' equity		$188,510
* Beginning retained earnings	$12,250	
Add net income (see requirement 4)	5,110	
Ending retained earnings	$17,360	

Problem 8-30 (60 minutes)

1. The estimated sales for the third quarter:

	Month			
	July	*August*	*September*	*Quarter*
Budgeted unit sales	30,000	70,000	50,000	150,000
Selling price per unit ...	× $12	× $12	× $12	× $12
Budgeted sales.....	$360,000	$840,000	$600,000	$1,800,000

2. The expected cash collections from sales for the third quarter:

Accounts receivable, June 30:				
$300,000 × 65%	$195,000			$ 195,000
July sales:				
$360,000 × 30%, 65%	108,000	$234,000		342,000
August sales:				
$840,000 × 30%, 65%		252,000	$546,000	798,000
September sales:				
$600,000 × 30%			180,000	180,000
Total cash collections ..	$303,000	$486,000	$726,000	$1,515,000

3. The production budget (quantity of beach umbrellas) for July-October:

	July	*August*	*September*	*October*
Budgeted unit sales	30,000	70,000	50,000	20,000
Add desired units of ending finished goods inventory	10,500	7,500	3,000	1,500
Total needs	40,500	77,500	53,000	21,500
Less units of beginning finished goods inventory	4,500	10,500	7,500	3,000
Required production in units ..	36,000	67,000	45,500	18,500

Problem 8-30 (continued)

4 and 5. The direct materials budget for the third quarter:

	July	*August*	*September*	*Quarter*
Required production in units of finished goods	36,000	67,000	45,500	148,500
Units of raw materials needed per unit of finished goods	× 4	× 4	× 4	× 4
Units of raw materials needed to meet production	144,000	268,000	182,000	594,000
Add desired units of ending raw materials inventory*	134,000	91,000	37,000	37,000
Total units of raw materials needed	278,000	359,000	219,000	631,000
Less units of beginning raw materials inventory	72,000	134,000	91,000	72,000
Units of raw materials to be purchased	206,000	225,000	128,000	559,000
Unit cost of raw materials	× $0.80	× $0.80	× $0.80	× $0.80
Cost of raw materials to be purchased	$164,800	$180,000	$102,400	$447,200

* September 30: 18,500 units (October) × 4 feet per unit = 74,000 feet
74,000 feet × ½ = 37,000 feet

Problem 8-30 (continued)

6. The expected cash disbursements for materials purchases for the third quarter:

	July	*August*	*September*	*Quarter*
Accounts payable, June 30.....	$ 76,000			$ 76,000
July purchases: $164,800 × 50%, 50%.	82,400	$ 82,400		164,800
August purchases: $180,000 × 50%, 50%.		90,000	$ 90,000	180,000
September purchases: $102,400 × 50%			51,200	51,200
Total cash disbursements	$158,400	$172,400	$141,200	$472,000

Problem 8-31 (120 minutes)

1. Schedule of expected cash collections:

	January	*February*	*March*	*Quarter*
Cash sales	$ 80,000 *	$120,000	$ 60,000	$ 260,000
Credit sales.....	224,000 *	320,000	480,000	1,024,000
Total cash collections	$304,000 *	$440,000	$540,000	$1,284,000

* Given.

2. a. Merchandise purchases budget:

	January	*February*	*March*	*Quarter*
Budgeted cost of goods sold[1]	$240,000 *	$360,000 *	$180,000	$780,000
Add desired ending merchandise inventory[2]	90,000 *	45,000	30,000	30,000
Total needs.....	330,000 *	405,000	210,000	810,000
Less beginning merchandise inventory.....	60,000 *	90,000	45,000	60,000
Required purchases	$270,000 *	$315,000	$165,000	$750,000

[1]For January sales: $400,000 × 60% cost ratio = $240,000.
[2]At January 31: $360,000 × 25% = $90,000. At March 31: $200,000 April sales × 60% cost ratio × 25% = $30,000.
* Given.

b. Schedule of expected cash disbursements for merchandise purchases:

	January	*February*	*March*	*Quarter*
December purchases	$ 93,000 *			$ 93,000 *
January purchases...	135,000 *	$135,000 *		270,000 *
February purchases .		157,500	$157,500	315,000
March purchases			82,500	82,500
Total cash disbursements for purchases	$228,000 *	$292,500	$240,000	$760,500

* Given.

Problem 8-31 (continued)

3. Cash budget:

	January		*February*	*March*	*Quarter*
Beginning cash balance	$ 48,000	*	$ 30,000	$ 30,800	$ 48,000
Add collections from customers	304,000	*	440,000	540,000	1,284,000
Total cash available	352,000	*	470,000	570,800	1,332,000
Less cash disbursements:					
Inventory purchases	228,000	*	292,500	240,000	760,500
Selling and administrative expenses**	129,000	*	145,000	121,000	395,000
Equipment purchases	0		1,700	84,500	86,200
Cash dividends	45,000	*	0	0	45,000
Total cash disbursements	402,000	*	439,200	445,500	1,286,700
Excess (deficiency) of cash available over disbursements	(50,000)	*	30,800	125,300	45,300
Financing:					
Borrowings	80,000		0	0	80,000
Repayments	0		0	(80,000)	(80,000)
Interest ($80,000 × 1% × 3)	0		0	(2,400)	(2,400)
Total financing	80,000		0	(82,400)	(2,400)
Ending cash balance	$ 30,000		$ 30,800	$ 42,900	$ 42,900

* Given.

** February: $27,000 + $70,000 + [$600,000 × (5% + 3%)] = $145,000.

Problem 8-31 (continued)

4. Income statement:

Hillyard Company
Income Statement
For the Quarter Ended March 31

Sales		$1,300,000
Cost of goods sold:		
Beginning inventory (Given)	$ 60,000	
Add purchases (see requirement 2)	750,000	
Goods available for sale	810,000	
Ending inventory (see requirement 2)	30,000	780,000 *
Gross margin		520,000
Selling and administrative expenses:		
Salaries and wages ($27,000 × 3)	81,000	
Advertising ($70,000 × 3)	210,000	
Shipping (5% of sales)	65,000	
Depreciation (given)	42,000	
Other expenses (3% of sales)	39,000	437,000
Net operating income		83,000
Interest expense (see requirement 3)		2,400
Net income		$ 80,600

* A simpler computation would be: $1,300,000 x 60% = $780,000.

Problem 8-31 (continued)

5. Balance sheet:

Hillyard Company
Balance Sheet
March 31

Assets		
Current assets:		
Cash (see requirement 3)		$ 42,900
Accounts receivable (80% × $300,000)		240,000
Inventory (see requirement 2a)		30,000
Total current assets		312,900
Buildings and equipment, net ($370,000 + $86,200 – $42,000)		414,200
Total assets		$727,100
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable (50% × $165,000)		$ 82,500
Stockholders' equity:		
Common stock	$500,000	
Retained earnings*	144,600	644,600
Total liabilities and stockholders' equity		$727,100

* Beginning retained earnings	$109,000
Add net income	80,600
Total	189,600
Deduct cash dividends	45,000
Ending retained earnings	$144,600

Analytical Thinking (45 minutes)

1. The budgetary control system has several important shortcomings that reduce its effectiveness and may cause it to interfere with good performance. Some of the shortcomings are explained below.
   a. *Lack of Coordinated Goals.* Emory had been led to believe high-quality output is the goal; it now appears low cost is the goal. Employees do not know what the goals are and thus cannot make decisions that further the goals.
   b. *Influence of Uncontrollable Factors.* Actual performance relative to budget is greatly influenced by uncontrollable factors (i.e., rush orders, lack of prompt maintenance). Thus, the variance reports serve little purpose for performance evaluation or for locating controllable factors to improve performance. As a result, the system does not encourage coordination among departments.
   c. *The Short-Run Perspectives.* Monthly evaluations and budget tightening on a monthly basis results in a very short-run perspective. This results in inappropriate decisions (i.e., inspect forklift trucks rather than repair inoperative equipment, fail to report supplies usage).
   d. *System Does Not Motivate.* The budgetary system appears to focus on performance evaluation even though most of the essential factors for that purpose are missing. The focus on evaluation and the weaknesses take away an important benefit of the budgetary system—employee motivation.

2. The improvements in the budgetary control system should correct the deficiencies described above. The system should:
   a. more clearly define the company's objectives.
   b. develop an accounting reporting system that better matches controllable factors with supervisor responsibility and authority.
   c. establish budgets for appropriate time periods that do not change monthly simply as a result of a change in the prior month's performance.

   The entire company from top management down should be educated in sound budgetary procedures.

(Unofficial CMA Solution, adapted)

Case (120 minutes)

1. a. Sales budget:

	April	*May*	*June*	*Quarter*
Budgeted unit sales	65,000	100,000	50,000	215,000
Selling price per unit	× $10	× $10	× $10	× $10
Total sales	$650,000	$1,000,000	$500,000	$2,150,000

b. Schedule of expected cash collections:

February sales (10%)	$ 26,000			$ 26,000
March sales (70%, 10%)	280,000	$ 40,000		320,000
April sales (20%, 70%, 10%)	130,000	455,000	$ 65,000	650,000
May sales (20%, 70%)		200,000	700,000	900,000
June sales (20%)			100,000	100,000
Total cash collections	$436,000	$695,000	$865,000	$1,996,000

c. Merchandise purchases budget:

Budgeted unit sales	65,000	100,000	50,000	215,000
Add desired ending merchandise inventory	40,000	20,000	12,000	12,000
Total needs	105,000	120,000	62,000	227,000
Less beginning merchandise inventory	26,000	40,000	20,000	26,000
Required purchases	79,000	80,000	42,000	201,000
Cost of purchases at $4 per unit	$316,000	$320,000	$168,000	$ 804,000

d. Budgeted cash disbursements for merchandise purchases:

Accounts payable	$100,000			$ 100,000
April purchases	158,000	$158,000		316,000
May purchases		160,000	$160,000	320,000
June purchases			84,000	84,000
Total cash payments	$258,000	$318,000	$244,000	$ 820,000

Case (continued)

2.

Earrings Unlimited
Cash Budget
For the Three Months Ending June 30

	April	*May*	*June*	*Quarter*
Beginning cash balance	$ 74,000	$ 50,000	$ 50,000	$ 74,000
Add collections from customers	436,000	695,000	865,000	1,996,000
Total cash available	510,000	745,000	915,000	2,070,000
Less cash disbursements:				
Merchandise purchases	258,000	318,000	244,000	820,000
Advertising	200,000	200,000	200,000	600,000
Rent	18,000	18,000	18,000	54,000
Salaries	106,000	106,000	106,000	318,000
Commissions (4% of sales)	26,000	40,000	20,000	86,000
Utilities	7,000	7,000	7,000	21,000
Equipment purchases	0	16,000	40,000	56,000
Dividends paid	15,000	0	0	15,000
Total cash disbursements	630,000	705,000	635,000	1,970,000
Excess (deficiency) of cash available over disbursements	(120,000)	40,000	280,000	100,000
Financing:				
Borrowings	170,000	10,000	0	180,000
Repayments	0	0	(180,000)	(180,000)
Interest ($170,000 × 1% × 3 + $10,000 × 1% × 2)	0	0	(5,300)	(5,300)
Total financing	170,000	10,000	(185,300)	(5,300)
Ending cash balance	$ 50,000	$ 50,000	$ 94,700	$ 94,700

Case (continued)

3.

Earrings Unlimited
Budgeted Income Statement
For the Three Months Ended June 30

Sales (see requirement 1a.)		$2,150,000
Variable expenses:		
Cost of goods sold (@ $4 per unit)	$860,000	
Commissions @ 4% of sales	86,000	946,000
Contribution margin		1,204,000
Fixed expenses:		
Advertising ($200,000 × 3)	600,000	
Rent ($18,000 × 3)	54,000	
Salaries ($106,000 × 3)	318,000	
Utilities ($7,000 × 3)	21,000	
Insurance ($3,000 × 3)	9,000	
Depreciation ($14,000 × 3)	42,000	1,044,000
Net operating income		160,000
Interest expense (see requirement 2)		5,300
Net income		$ 154,700

Case (continued)

4.

Earrings Unlimited
Budgeted Balance Sheet
June 30

Assets	
Cash (see requirement 2)	$ 94,700
Accounts receivable (see below)	500,000
Inventory (12,000 units @ $4 per unit)	48,000
Prepaid insurance ($21,000 – $9,000)	12,000
Property and equipment, net ($950,000 + $56,000 – $42,000)	964,000
Total assets	$1,618,700
Liabilities and Stockholders' Equity	
Accounts payable, purchases (50% × $168,000)	$ 84,000
Dividends payable	15,000
Common stock	800,000
Retained earnings (see below)	719,700
Total liabilities and stockholders' equity	$1,618,700

Accounts receivable at June 30:

10% × May sales of $1,000,000	$100,000
80% × June sales of $500,000	400,000
Total	$500,000

Retained earnings at June 30:

Balance, March 31	$580,000
Add net income (see requirement 3)	154,700
Total	734,700
Less dividends declared	15,000
Balance, June 30	$719,700

Ethics Challenge (75 minutes)

1. Stokes is using the budget as a club to pressure employees and as a way to find someone to blame rather than as a legitimate planning and control tool. His planning seems to consist of telling everyone to increase sales volume by 40%. This kind of "planning" requires no analysis, no intelligence, no business insight, and is very likely viewed with contempt by the employees of the company.

2. The way in which the budget is being used is likely to breed hostility, tension, mistrust, lack of respect, and actions designed to meet targets using any means available. Unreasonable targets imposed from the top, coupled with a "no excuses" policy and the threat of being fired, create an ideal breeding ground for questionable business practices. Managers who would not, under ordinary circumstances, cheat or cut corners may do so if put under this kind of pressure.

3. As the old saying goes, Keri Kalani is "between a rock and a hard place." The Statement of Ethical Professional Practice established by the Institute of Management Accountants states that management accountants have a responsibility to "disclose all relevant information that could reasonably be expected to influence an intended user's understanding of the reports, analyses, or recommendations." Assuming that Keri helps prepare the Production Department's reports to top management, collaborating with her boss in hiding losses due to defective disk drives would clearly violate this standard. Apart from the misrepresentation on the accounting reports, the policy of shipping defective returned units to customers is bound to have a negative effect on the company's reputation. If this policy were to become widely known, it would very likely have a devastating effect on the company's future sales. Moreover, this practice may be illegal under statutes designed to protect consumers.

   Having confronted her boss with no satisfactory resolution of the problem, Keri must now decide what to do. The Statement of Ethical Professional Practice suggests that Keri go to the next higher level in management to present her case. Unfortunately, in the prevailing moral climate at PrimeDrive, she is unlikely to win any blue ribbons for blowing the whistle on her boss. All of the managers below Stokes are likely to be in fear of losing their own jobs and many of them may have taken actions to meet Stokes's targets that they are not proud of either.

Ethics Challenge (continued)

It would take tremendous courage for Keri to take the problem all the way up to Stokes himself—particularly in view of his less-than-humane treatment of subordinates. And going to the Board of Directors is unlikely to work either because Stokes and his venture capital firm apparently control the Board. Resigning, with a letter of memorandum to the individual who is most likely to be concerned and to be able to take action, may be the only ethical course of action that is available to Keri in this situation. Of course, she must pay her rent, so hopefully she has good alternative employment opportunities.

Note: This problem is very loosely based on the MiniScribe scandal reported in the December, 1992 issue of *Management Accounting* as well as in other business publications. After going bankrupt, it was discovered that managers at MiniScribe had perpetrated massive fraud as a result of the unrelenting pressure to meet unrealistic targets. Q. T. Wiles, the real chairman of MiniScribe, was reported to have behaved much as described in this problem. Keri Kalani is, alas, a fabrication. Hopefully, there were people like Keri at MiniScribe who tried to do something to stop the fraud.

Communicating in Practice (60 minutes)

1. Across-the-board cuts may be politically palatable and may be perceived as fair by many, but they are indiscriminate. Cuts are taken out of programs without regard to their importance to the university and students.

2. When determining which programs should receive greater or smaller reductions in their budgets, administrators must make judgments about which programs can be cut with the least harm to the central purposes of the university.

3. If cuts are likely to continue, administrators should be particularly vigilant to monitor the quality and effectiveness of programs and to closely watch how well programs use financial resources.

4. To increase understanding and cooperation, the decision-making process should be participative. Those who will be affected by the decisions should have some say in the decision making.

5. By allowing individuals to participate in the budgeting process and by attempting to build consensus, the animosity that may be felt by those affected by cuts may be reduced. However, this is a two-edged sword. Allowing lower-level administrators to participate in the decision making may invite turf-protecting tactics. Moreover, it may be impossible to build consensus because of resistance to change. These are not easy problems to deal with.