

SOLUTIONS TO BRIEF EXERCISES

BRIEF EXERCISE 10-1

MARIS COMPANY
Sales Budget Report
For the Quarter Ended March 31, 2014

<u>Product Line</u>	<u>Budget</u>	<u>Actual</u>	<u>Difference</u>
Garden-Tools	\$310,000	\$305,000	\$5,000 U

BRIEF EXERCISE 10-2

MARIS COMPANY
Sales Budget Report
For the Quarter Ended June 30, 2014

<u>Product Line</u>	<u>Second Quarter</u>			<u>Year to Date</u>		
<u>Budget</u>	<u>Actual</u>	<u>Difference</u>	<u>Budget</u>	<u>Actual</u>	<u>Difference</u>	
Garden-Tools	\$380,000	\$384,000	\$4,000 F	\$690,000	\$689,000	\$1,000 U

BRIEF EXERCISE 10-3

(a) **PAIGE COMPANY**
Static Direct Labor Budget Report
For the Month Ended January 31, 2014

	<u>Budget</u>	<u>Actual</u>	<u>Difference</u>
Direct Labor	\$200,000	(10,000 X \$20) \$204,000	\$4,000 U

(b) **PAIGE COMPANY**
Flexible Direct Labor Budget Report
For the Month Ended January 31, 2014

	<u>Budget</u>	<u>Actual</u>	<u>Difference</u>
Direct Labor	\$208,000	(10,400 X \$20) \$204,000	\$4,000 F

BRIEF EXERCISE 10-3 (Continued)

The static budget does not provide a proper basis for evaluating performance because the budget is not based on the hours actually worked. In contrast, the flexible budget provides the proper basis for evaluating performance because the budget is based on the hours actually worked.

BRIEF EXERCISE 10-4

GUNDY COMPANY
Monthly Flexible Manufacturing Budget
For the Year 2014

Activity level	<u>80,000</u>	<u>100,000</u>	<u>120,000</u>
Finished units			
Variable costs			
Direct materials (\$5)	\$ 400,000	\$ 500,000	\$ 600,000
Direct labor (\$6)	480,000	600,000	720,000
Overhead (\$8)	<u>640,000</u>	<u>800,000</u>	<u>960,000</u>
Total variable costs (\$19)	<u>\$1,520,000</u>	<u>\$1,900,000</u>	<u>\$2,280,000</u>
Fixed costs			
Depreciation (1)	200,000	200,000	200,000
Supervision (2)	<u>100,000</u>	<u>100,000</u>	<u>100,000</u>
Total fixed costs	<u>300,000</u>	<u>300,000</u>	<u>300,000</u>
Total costs	<u>\$1,820,000</u>	<u>\$2,200,000</u>	<u>\$2,580,000</u>

(1) $(\$2 \times 1,200,000) \div 12$

(2) $(\$1 \times 1,200,000) \div 12$

BRIEF EXERCISE 10-5

GUNDY COMPANY
Manufacturing Flexible Budget Report
For the Month Ended March 31, 2014

	<u>Budget</u>	<u>Actual</u>	<u>Difference</u>
Units produced	<u>100,000</u>	<u>100,000</u>	<u>Favorable F</u> <u>Unfavorable U</u>
Variable costs			
Direct materials	\$ 500,000	\$ 525,000	\$25,000 U
Direct labor	600,000	596,000	4,000 F
Overhead	<u>800,000</u>	<u>805,000</u>	<u>5,000 U</u>
Total variable costs	<u>\$1,900,000</u>	<u>\$1,926,000</u>	<u>\$26,000 U</u>
Fixed costs			
Depreciation	200,000	200,000	<u>-0-</u>
Supervision	<u>100,000</u>	<u>100,000</u>	<u>-0-</u>
Total fixed costs	<u>300,000</u>	<u>300,000</u>	<u>-0-</u>
Total costs	<u>\$2,200,000</u>	<u>\$2,226,000</u>	<u>\$26,000 U</u>

Costs were not entirely controlled as evidenced by the difference between budgeted and actual for the variable costs.

BRIEF EXERCISE 10-6

HANNON COMPANY
Assembly Department
Manufacturing Overhead Cost Responsibility Report
For the Month Ended April 30, 2014

<u>Controllable Cost</u>	<u>Budget</u>	<u>Actual</u>	<u>Difference</u>
Indirect materials	\$16,000	\$14,300	\$1,700 F
Indirect labor	20,000	20,600	600 U
Utilities	10,000	10,850	850 U
Supervision	<u>5,000</u>	<u>5,000</u>	<u>0</u>
	<u>\$51,000</u>	<u>\$50,750</u>	<u>\$ 250 F</u>

BRIEF EXERCISE 10-7

ELBERT COMPANY
Water Division
Responsibility Report
For the Year Ended December 31, 2014

	<u>Budget</u>	<u>Actual</u>	<u>Difference</u>
			Favorable F Unfavorable U
Sales	\$2,000,000	\$2,080,000	\$80,000 F
Variable costs	<u>1,000,000</u>	<u>1,060,000</u>	<u>60,000 U</u>
Contribution margin	1,000,000	1,020,000	20,000 F
Controllable fixed costs	<u>300,000</u>	<u>305,000</u>	<u>5,000 U</u>
Controllable margin	<u>\$ 700,000</u>	<u>\$ 715,000</u>	<u>\$15,000 F</u>

BRIEF EXERCISE 10-8

COBB COMPANY
Plastics Division
Responsibility Report
For the Year Ended December 31, 2014

	<u>Budget</u>	<u>Actual</u>	<u>Difference</u>
			Favorable F Unfavorable U
Contribution margin	\$700,000	\$710,000	\$10,000 F
Controllable fixed costs	<u>300,000</u>	<u>302,000</u>	<u>2,000 U</u>
Controllable margin	<u>\$400,000</u>	<u>\$408,000</u>	<u>\$ 8,000 F</u>
Return on investment	20%	20.4%	.4% F
	(\$400,000 ÷ \$2,000,000)	(\$408,000 ÷ \$2,000,000)	(\$8,000 ÷ \$2,000,000)

BRIEF EXERCISE 10-9

- I 26% (\$1,300,000 ÷ \$5,000,000)
- II 25% (\$2,000,000 ÷ \$8,000,000)
- III 30% (\$3,600,000 ÷ \$12,000,000)

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BRIEF EXERCISE 10-10

- I A \$300,000 ($\$2,000,000 \times .15$) increase in sales will increase contribution margin and controllable margin \$210,000 ($\$300,000 \times 70\%$). The new ROI is 30.2% ($\$1,510,000 \div \$5,000,000$).
- II A decrease in costs results in a corresponding increase in controllable margin. The new ROI is 30% ($\$2,400,000 \div \$8,000,000$).
- III A decrease in average operating assets reduces the denominator. The new ROI is 31.3% ($\$3,600,000 \div \$11,500,000$).

*BRIEF EXERCISE 10-11

Controllable Margin	÷	Average Operating Assets	=	ROI
\$660,000	÷	\$3,000,000	=	22%

Controllable Margin	-	(Minimum Rate of Return X Average Operating Assets)	=	Residual Income
\$660,000	-	(10% X \$3,000,000)	=	Residual Income
\$660,000	-	\$300,000	=	\$360,000

*BRIEF EXERCISE 10-12

Controllable Margin	÷	Average Operating Assets	=	ROI
\$800,000	÷	\$4,000,000	=	20%

Controllable Margin	-	(Minimum Rate of Return X Average Operating Assets)	=	Residual Income
\$800,000	-	(15% X \$4,000,000)	=	Residual Income
\$800,000	-	\$600,000	=	\$200,000

SOLUTIONS FOR DO IT! REVIEW EXERCISES

DO IT! 10-1

Using the graph data, fixed costs are \$90,000, and variable costs are \$4.80 per direct labor hour $[(\$330,000 - \$90,000) \div 50,000]$. Thus, at 65,000 direct labor hours, total budgeted costs are \$402,000 $[\$90,000 + (65,000 \times \$4.80)]$.

DO IT! 10-2

	<u>Budget</u>	<u>Actual</u>	<u>Difference</u>
Units produced	<u>6,000 units</u>	<u>6,000 units</u>	<u>Favorable F</u> <u>Unfavorable U</u>
Variable costs			
Direct materials (\$7)	\$ 42,000	\$ 38,850	\$3,150 F
Direct labor (\$13)	78,000	76,440	1,560 F
Overhead (\$18)	<u>108,000</u>	<u>116,640</u>	<u>8,640 U</u>
Total variable costs	<u>228,000</u>	<u>231,930</u>	<u>3,930 U</u>
Fixed costs			
Depreciation*	8,000	8,000	0
Supervision**	<u>3,800</u>	<u>4,000</u>	<u>200 U</u>
Total fixed costs	<u>11,800</u>	<u>12,000</u>	<u>200 U</u>
Total costs	<u>\$239,800</u>	<u>\$243,930</u>	<u>\$4,130 U</u>

*\$96,000/12

**\$45,600/12

The flexible budget report indicates that actual overhead was 8.0% over budget. This cost was not well-controlled and should be examined further. The other variable costs came in under budget. The direct materials cost was 7.5% under budget; Mussatto should also investigate the cause of this difference, even though it is favorable. Finally, Mussatto also should investigate the unfavorable difference in supervision (5.3%) to determine if the budget amount is out-of-date.

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DO IT! 10-3

WELLSTONE DIVISION
Responsibility Report
For the Year Ended December 31, 2014

	<u>Budget</u>	<u>Actual</u>	<u>Difference</u> Favorable F Unfavorable U
Sales	\$2,000,000	\$1,860,000	\$140,000 U
Variable costs	<u>800,000</u>	<u>760,000</u>	<u>40,000 F</u>
Contribution margin	1,200,000	1,100,000	100,000 U
Controllable fixed costs	<u>550,000</u>	<u>550,000</u>	<u>-0-</u>
Controllable margin	<u>\$ 650,000</u>	<u>\$ 550,000</u>	<u>\$100,000 U</u>

DO IT! 10-4

(a) Controllable margin for 2013:

Sales.....	\$500,000
Variable costs.....	<u>300,000</u>
Contribution margin	200,000
Controllable fixed costs	<u>75,000</u>
Controllable margin.....	<u>\$125,000</u>

Return on investment for 2013:	<u>\$125,000</u>		=	20%
	\$625,000			

(b) Expected return on investment for alternative 1:

$$\frac{\$125,000^*}{\$500,000} = 25\%$$

*Controllable margin remains unchanged from (a)

DO IT! 10-4 (Continued)

Controllable margin for alternative 2:

Sales (\$500,000 + 100,000)	\$600,000
Variable costs	
(\$300,000/\$500,000 X \$600,000)	<u>360,000</u>
Contribution margin.....	<u>240,000</u>
Controllable fixed costs	<u>75,000</u>
Controllable margin	<u>\$165,000</u>

Expected return on investment	<u>\$165,000</u>	=	26.4%
for alternative 2:	<u>\$625,000</u>		

SOLUTIONS TO EXERCISES

EXERCISE 10-1

1. True.
2. False. Budget reports are prepared *as frequently as needed*.
3. True.
4. True.
5. False. Budgetary control works best when a company has *a formalized reporting system*.
6. False. The primary recipients of the sales report are the sales manager and *top management*.
7. True.
8. True.
9. False. Top management's reaction to unfavorable differences is *often* influenced by the materiality of the difference.
10. True.

EXERCISE 10-2

- (a) **CREDE COMPANY**
Selling Expense Report
For the Quarter Ending March 31

Month	By Month			Year-to-Date		
	Budget	Actual	Difference	Budget	Actual	Difference
January	\$30,000	\$31,200	\$1,200 U	\$ 30,000	\$ 31,200	\$1,200 U
February	\$35,000	\$34,525	\$ 475 F	\$ 65,000	\$ 65,725	\$ 725 U
March	\$40,000	\$46,000	\$6,000 U	\$105,000	\$111,725	\$6,725 U

- (b) The purpose of the Selling Expense Report is to help management control selling expenses. The primary recipient is the sales manager.
- (c) Most likely, when management scrutinized the results for January and February, they would determine that the difference was insignificant (4% in January and 1.4% in February), and require no action. When the March results are examined, however, the fact that the difference is 15% of budget would probably cause management to investigate further. As a result of their investigation, management would either take corrective action or modify the amounts of budgeted selling expense for future months to reflect changing conditions.

EXERCISE 10-3

THOME COMPANY
Monthly Manufacturing Overhead Flexible Budget
For the Year 2014

Activity level					
Direct labor hours		<u>7,000</u>	<u>8,000</u>	<u>9,000</u>	<u>10,000</u>
Variable costs					
Indirect labor (\$1)	\$	7,000	\$ 8,000	\$ 9,000	\$10,000
Indirect materials (\$.60)		4,200	4,800	5,400	6,000
Utilities (\$.40)		<u>2,800</u>	<u>3,200</u>	<u>3,600</u>	<u>4,000</u>
Total variable costs (\$2.00)		<u>14,000</u>	<u>16,000</u>	<u>18,000</u>	<u>20,000</u>
Fixed costs					
Supervision		4,000	4,000	4,000	4,000
Depreciation		1,200	1,200	1,200	1,200
Property taxes		<u>800</u>	<u>800</u>	<u>800</u>	<u>800</u>
Total fixed costs		<u>6,000</u>	<u>6,000</u>	<u>6,000</u>	<u>6,000</u>
Total costs		<u>\$20,000</u>	<u>\$22,000</u>	<u>\$24,000</u>	<u>\$26,000</u>

EXERCISE 10-4

(a) **THOME COMPANY**
Manufacturing Overhead Flexible Budget Report
For the Month Ended July 31, 2014

	Budget at	Actual Costs	Difference
Direct labor hours (DLH)	<u>9,000 DLH</u>	<u>9,000 DLH</u>	Favorable F Unfavorable U
Variable costs			
Indirect labor	\$ 9,000	\$ 8,800	\$200 F
Indirect materials	5,400	5,300	100 F
Utilities	<u>3,600</u>	<u>3,200</u>	<u>400 F</u>
Total variable costs	<u>18,000</u>	<u>17,300</u>	<u>700 F</u>
Fixed costs			
Supervision	4,000	4,000	—
Depreciation	1,200	1,200	—
Property taxes	<u>800</u>	<u>800</u>	—
Total fixed costs	<u>6,000</u>	<u>6,000</u>	—
Total costs	<u>\$24,000</u>	<u>\$23,300</u>	<u>\$700 F</u>

EXERCISE 10-4 (Continued)**(b)**

THOME COMPANY
Manufacturing Overhead Flexible Budget Report
For the Month Ended July 31, 2014

	Budget at	Actual Costs	Difference
Direct labor hours (DLH)	<u>8,500 DLH</u>	<u>8,500 DLH</u>	<u>Favorable F</u> <u>Unfavorable U</u>
Variable costs			
Indirect labor (\$1.00)	\$ 8,500	\$ 8,800	\$300 U
Indirect materials (\$0.60)	5,100	5,300	200 U
Utilities (\$0.40)	<u>3,400</u>	<u>3,200</u>	<u>200 F</u>
Total variable costs (\$2.00)	<u>17,000</u>	<u>17,300</u>	<u>300 U</u>
Fixed costs			
Supervision	4,000	4,000	—
Depreciation	1,200	1,200	—
Property taxes	<u>800</u>	<u>800</u>	<u>—</u>
Total fixed costs	<u>6,000</u>	<u>6,000</u>	<u>—</u>
Total costs	<u>\$23,000</u>	<u>\$23,300</u>	<u>\$300 U</u>

(c) In case (a) the performance for the month was satisfactory. In case (b) management may need to determine the causes of the unfavorable differences for indirect labor and indirect materials, or since the differences are small, 3.5% of budgeted cost for indirect labor and 3.9% for indirect materials, they might be considered immaterial.

EXERCISE 10-5

DEWITT COMPANY
Monthly Selling Expense Flexible Budget
For the Year 2014

Activity level					
Sales		<u>\$170,000</u>	<u>\$180,000</u>	<u>\$190,000</u>	<u>\$200,000</u>
Variable expenses					
Sales commissions (6%)	\$ 10,200	\$ 10,800	\$ 11,400	\$ 12,000	
Advertising (4%)	6,800	7,200	7,600	8,000	
Traveling (3%)	5,100	5,400	5,700	6,000	
Delivery (2%)	<u>3,400</u>	<u>3,600</u>	<u>3,800</u>	<u>4,000</u>	
Total variable expenses (15%)	<u>25,500</u>	<u>27,000</u>	<u>28,500</u>	<u>30,000</u>	
Fixed expenses					
Sales salaries	35,000	35,000	35,000	35,000	
Depreciation	7,000	7,000	7,000	7,000	
Insurance	<u>1,000</u>	<u>1,000</u>	<u>1,000</u>	<u>1,000</u>	
Total fixed expenses	<u>43,000</u>	<u>43,000</u>	<u>43,000</u>	<u>43,000</u>	
Total expenses	<u>\$ 68,500</u>	<u>\$ 70,000</u>	<u>\$ 71,500</u>	<u>\$ 73,000</u>	

EXERCISE 10-6

(a) **DEWITT COMPANY**
Selling Expense Flexible Budget Report
For the Month Ended March 31, 2014

			<u>Difference</u>
	<u>Budget</u>	<u>Actual</u>	<u>Favorable F</u> <u>Unfavorable U</u>
Sales	<u>\$170,000</u>	<u>\$170,000</u>	
Variable expenses			
Sales commissions	\$ 10,200	\$ 11,000	\$800 U
Advertising	6,800	6,900	100 U
Travel	5,100	5,100	0
Delivery	<u>3,400</u>	<u>3,450</u>	<u>50 U</u>
Total variable expenses	<u>25,500</u>	<u>26,450</u>	<u>950 U</u>
Fixed expenses			
Sales salaries	35,000	35,000	0
Depreciation	7,000	7,000	0
Insurance	<u>1,000</u>	<u>1,000</u>	<u>0</u>
Total fixed expenses	<u>43,000</u>	<u>43,000</u>	<u>0</u>
Total expenses	<u>\$ 68,500</u>	<u>\$ 69,450</u>	<u>\$950 U</u>

EXERCISE 10-6 (Continued)

(b)

DEWITT COMPANY
Selling Expense Flexible Budget Report
For the Month Ended March 31, 2014

	Budget	Actual	Difference
			Favorable F Unfavorable U
Sales	<u>\$180,000</u>	<u>\$180,000</u>	
Variable expenses			
Sales commissions	\$ 10,800	\$ 11,000	\$200 U
Advertising	7,200	6,900	300 F
Travel	5,400	5,100	300 F
Delivery	<u>3,600</u>	<u>3,450</u>	<u>150 F</u>
Total variable expenses	<u>27,000</u>	<u>26,450</u>	<u>550 F</u>
Fixed costs			
Sales salaries	35,000	35,000	0
Depreciation	7,000	7,000	0
Insurance	<u>1,000</u>	<u>1,000</u>	<u>0</u>
Total fixed expenses	<u>43,000</u>	<u>43,000</u>	<u>0</u>
Total expenses	<u>\$ 70,000</u>	<u>\$ 69,450</u>	<u>\$550 F</u>

(c) Flexible budgets are essential in evaluating a manager's performance in controlling variable expenses because the budget allowance varies directly with changes in the activity index. At \$170,000 of sales, the manager was over budget (unfavorable) by \$950 but at \$180,000 of sales, the manager was under budget (favorable) by \$550.

EXERCISE 10-7

(a) **KITCHEN HELP INC.**
Flexible Production Cost Budget

Activity level			
Production levels	<u>90,000</u>	<u>100,000</u>	<u>110,000</u>
Variable costs:			
Manufacturing (\$6)	\$ 540,000	\$ 600,000	\$ 660,000
Administrative (\$4)	360,000	400,000	440,000
Selling (\$2)	<u>180,000</u>	<u>200,000</u>	<u>220,000</u>
Total variable costs (\$12)	<u>1,080,000</u>	<u>1,200,000</u>	<u>1,320,000</u>
Fixed costs:			
Manufacturing	160,000	160,000	160,000
Administrative	<u>80,000</u>	<u>80,000</u>	<u>80,000</u>
Total fixed costs	<u>240,000</u>	<u>240,000</u>	<u>240,000</u>
Total costs	<u>\$1,320,000</u>	<u>\$1,440,000</u>	<u>\$1,560,000</u>

- (b) Let (X) represent number of units
Sales price(X) = Variable costs(X) + Fixed costs + Profit
Sales price(X) = Variable costs(X) + \$240,000 + \$200,000
(Sales price – Variable costs)(X) = \$440,000
(\$16 – \$12)(X) = \$440,000
\$4(X) = \$440,000
X = 110,000 units to be sold

EXERCISE 10-8

(a) **RENSING GROOMERS**
Flexible Budget

Activity level	<u>550</u>	<u>600</u>	<u>700</u>
Direct labor hours			
Variable costs:			
Grooming supplies (\$5)	\$ 2,750	\$ 3,000	\$ 3,500
Direct labor (\$14)	7,700	8,400	9,800
Overhead (\$1)	<u>550</u>	<u>600</u>	<u>700</u>
Total variable costs (\$20)	<u>11,000</u>	<u>12,000</u>	<u>14,000</u>
Fixed costs:			
Overhead	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>
Total fixed costs	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>
Total costs	<u>\$21,000</u>	<u>\$22,000</u>	<u>\$24,000</u>

(b) A flexible budget presents expected costs at various levels of production volume, not just one, so that comparisons can be made between actual costs and budgeted costs at the same volume. This allows the person to determine whether a difference between the actual results and budget is due to better or worse cost control than expected or due to achieving a different volume than that upon which the fixed budget was predicated.

(c) $\$21,000 \div 550 = \38.18
 $\$22,000 \div 600 = \36.67
 $\$24,000 \div 700 = \34.29

(d) Cost formula is $\$10,000 + \$20(X)$, where (X) = direct labor hours
Total cost = $\$10,000 + (\$20 \times 650) = \$23,000$.
Number of clients = $650 \text{ hrs} \div 1.30 \text{ hrs/client} = 500$
Cost per client = $\$23,000 \div 500 = \46.00
Charge per client = $\$46.00 \times 1.40 = \underline{\underline{\$64.40}}$

EXERCISE 10-9

**(a) LOWELL COMPANY
Manufacturing Overhead Flexible Budget Report
For the Quarter Ended March 31, 2014**

	<u>Budget</u>	<u>Actual</u>	<u>Difference</u> <u>Favorable F</u> <u>Unfavorable U</u>
Variable costs			
Indirect materials	\$12,000	\$13,900	\$1,900 U
Indirect labor	10,000	9,500	500 F
Utilities	8,000	8,700	700 U
Maintenance	<u>6,000</u>	<u>5,000</u>	<u>1,000 F</u>
Total variable costs	<u>36,000</u>	<u>37,100</u>	<u>1,100 U</u>
Fixed costs			
Supervisory salaries	36,000	36,000	0
Depreciation	7,000	7,000	0
Property taxes and insurance	8,000	8,400	400 U
Maintenance	<u>5,000</u>	<u>5,000</u>	<u>0</u>
Total fixed costs	<u>56,000</u>	<u>56,400</u>	<u>400 U</u>
Total costs	<u>\$92,000</u>	<u>\$93,500</u>	<u>\$1,500 U</u>

**(b) LOWELL COMPANY
Manufacturing Overhead Responsibility Report
For the Quarter Ended March 31, 2014**

<u>Controllable Costs</u>	<u>Budget</u>	<u>Actual</u>	<u>Difference</u> <u>Favorable F</u> <u>Unfavorable U</u>
Indirect materials	\$12,000	\$13,900	\$1,900 U
Indirect labor	10,000	9,500	500 F
Utilities	8,000	8,700	700 U
Maintenance*	11,000	10,000	1,000 F
Supervisory salaries	<u>36,000</u>	<u>36,000</u>	<u>0</u>
	<u>\$77,000</u>	<u>\$78,100</u>	<u>\$1,100 U</u>

*Includes variable and fixed costs

EXERCISE 10-10**(a)**

SORIA COMPANY
Selling Expense Flexible Budget Report
Clothing Department
For the Month Ended October 31, 2014

	Budget	Actual	Difference
			Favorable F Unfavorable U
Sales in units	<u>10,000</u>	<u>10,000</u>	
Variable expenses			
Sales commissions (\$.30)	\$ 3,000	\$ 2,600	\$ 400 F
Advertising expense (\$.09)	900	850	50 F
Travel expense (\$.45)	4,500	4,100	400 F
Free samples (\$.20)	<u>2,000</u>	<u>1,400</u>	<u>600 F</u>
Total variable expenses (\$1.04)	<u>10,400</u>	<u>8,950</u>	<u>1,450 F</u>
Fixed expenses			
Rent	1,500	1,500	0
Sales salaries	1,200	1,200	0
Office salaries	800	800	0
Depreciation—sale staff autos	<u>500</u>	<u>500</u>	<u>0</u>
Total fixed expenses	<u>4,000</u>	<u>4,000</u>	<u>0</u>
Total expenses	<u>\$14,400</u>	<u>\$12,950</u>	<u>\$1,450 F</u>

(b) No, Joe should not have been reprimanded. As shown in the flexible budget report, variable costs were \$1,450 below budget.

EXERCISE 10-11

(a)

KIRKLAND PLUMBING COMPANY
Home Plumbing Services Segment
Responsibility Report
For the Quarter Ended March 31, 2014

	<u>Budget</u>	<u>Actual</u>	<u>Difference</u> <u>Favorable F</u> <u>Unfavorable U</u>
Service revenue	<u>\$25,000</u>	<u>\$26,000</u>	<u>\$1,000 F</u>
Variable costs:			
Material and supplies	1,600	1,200	400 F
Wages	3,000	3,250	250 U
Gas and oil	<u>2,800</u>	<u>3,400</u>	<u>600 U</u>
Total variable costs	<u>7,400</u>	<u>7,850</u>	<u>450 U</u>
Contribution margin	<u>17,600</u>	<u>18,150</u>	<u>550 F</u>
Controllable fixed costs:			
Supervisory salaries	9,000	9,500	500 U
Insurance	4,000	3,600	400 F
Equipment depreciation	<u>1,500</u>	<u>1,300</u>	<u>200 F</u>
Total controllable fixed costs	<u>14,500</u>	<u>14,400</u>	<u>100 F</u>
Controllable margin	<u>\$ 3,100</u>	<u>\$ 3,750</u>	<u>\$ 650 F</u>

(b)

MEMO

TO: Lenny Kirkland

FROM: Student

SUBJECT: The Reporting Principles of Performance Reports

When evaluating the performance of a company's segments, the performance reports should:

1. Contain only data that are controllable by the segment's manager.
2. Provide accurate and reliable budget data to measure performance.
3. Highlight significant differences between actual results and budget goals.
4. Be tailor-made for the intended evaluation.
5. Be prepared at reasonable intervals.

I hope these suggested guidelines will be helpful in establishing the performance reporting system to be used by Kirkland Plumbing Company.

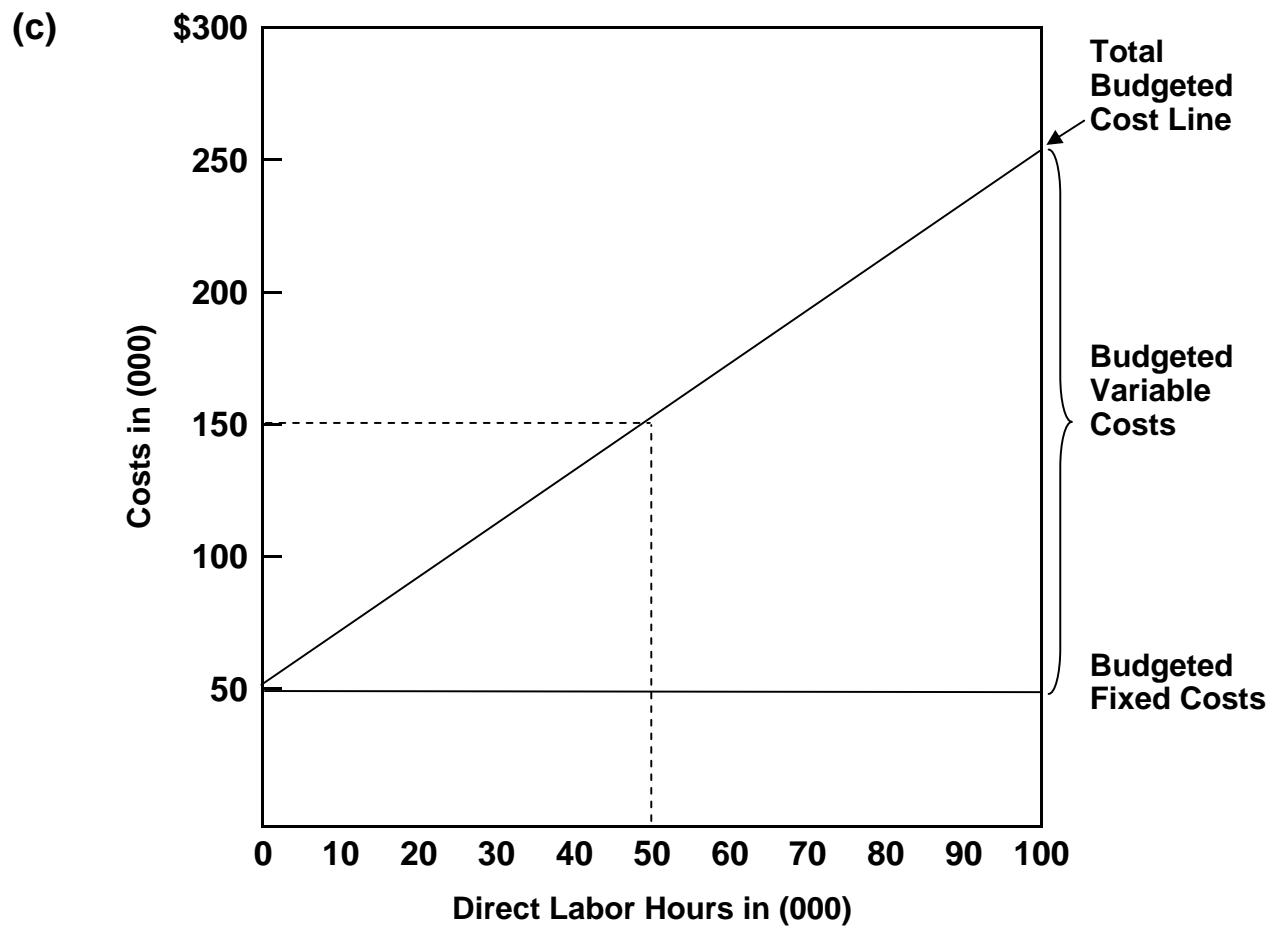
)

EXERCISE 10-12

(a) Fabricating Department = \$50,000 fixed costs plus total variable costs of \$2.00 per direct labor hour $[(\$150,000 - \$50,000) \div 50,000]$.

Assembling Department = \$40,000 fixed costs plus total variable costs of \$1.60 per direct labor hour $[(\$120,000 - \$40,000) \div 50,000]$.

(b) Fabricating Department = $\$50,000 + (\$2.00 \times 53,000) = \$156,000$.
Assembling Department = $\$40,000 + (\$1.60 \times 47,000) = \$115,200$.



EXERCISE 10-13**(a) To Dallas Department Manager—Finishing** **Month: July**

Controllable Costs:	Budget	Actual	Fav/Unfav
Direct Materials	\$ 44,000	\$ 41,500	\$2,500 F
Direct Labor	82,000	83,400	1,400 U
Manufacturing Overhead	<u>49,200</u>	<u>51,000</u>	<u>1,800 U</u>
Total	<u>\$175,200</u>	<u>\$175,900</u>	<u>\$ 700 U</u>

(b) To Assembly Plant Manager—Dallas **Month: July**

Controllable Costs:	Budget	Actual	Fav/Unfav
Dallas Office	\$ 92,000	\$ 95,000	\$3,000 U
Departments:			
Machining	219,000	220,000	1,000 U
Finishing	<u>175,200</u>	<u>175,900</u>	<u>700 U</u>
Total	<u>\$486,200</u>	<u>\$490,900</u>	<u>\$4,700 U</u>

(c) To Vice President—Production **Month: July**

Controllable Costs:	Budget	Actual	Fav/Unfav
V P Production	\$ 130,000	\$ 132,000	\$2,000 U
Assembly plants:			
Atlanta	421,000	424,000	3,000 U
Dallas	486,200	490,900	4,700 U
Tucson	<u>496,500</u>	<u>494,200</u>	<u>2,300 F</u>
Total	<u>\$1,533,700</u>	<u>\$1,541,100</u>	<u>\$7,400 U</u>

EXERCISE 10-14

(a)

MALONE COMPANY
Mixing Department
Responsibility Report
For the Month Ended January 31, 2014

<u>Controllable Cost</u>	<u>Budget</u>	<u>Actual</u>	<u>Difference</u>
Indirect labor	\$12,000	\$12,250	\$ 250 U
Indirect materials	7,700	10,200	2,500 U
Lubricants	1,675	1,650	25 F
Maintenance	3,500	3,500	-0-
Utilities	5,000	6,400	1,400 U
	<u>\$29,875</u>	<u>\$34,000</u>	<u>\$4,125 U</u>

- (b) Most likely, when management examined the responsibility report for January, they would determine that the differences were insignificant for indirect labor (2.1% of budget), lubricants (1.5%), and maintenance (0%) and require no action. However, the differences for indirect materials (32.5%) and utilities (28%) would cause management to investigate further. As a result of their investigation, management would either take corrective action or modify the budgeted amounts for future months to reflect changing conditions.

EXERCISE 10-15

- | | | |
|--------|---|-----------|
| (a) 1. | Controllable margin (\$250,000 – \$100,000) | \$150,000 |
| 2. | Variable costs (\$600,000 – \$250,000) | 350,000 |
| 3. | Contribution margin (\$450,000 – \$320,000) | 130,000 |
| 4. | Controllable fixed costs (\$130,000 – \$90,000) | 40,000 |
| 5. | Controllable fixed costs (\$180,000 – \$95,000) | 85,000 |
| 6. | Sales (\$250,000 + \$180,000) | 430,000 |

EXERCISE 10-15 (Continued)

(b) **DEITZ INC.**
Women's Shoe Division
Responsibility Report
For the Month Ended June 30, 2014

	<u>Budget</u>	<u>Actual</u>	<u>Difference</u> Favorable F Unfavorable U
Sales	\$600,000	\$600,000	\$ 0
Variable costs	<u>340,000</u>	<u>350,000</u>	<u>10,000 U</u>
Contribution margin	260,000	250,000	10,000 U
Controllable fixed costs	<u>100,000</u>	<u>100,000</u>	<u>0</u>
Controllable margin	<u>\$160,000</u>	<u>\$150,000</u>	<u>\$10,000 U</u>

EXERCISE 10-16

(a) **HARRINGTON COMPANY**
Sports Equipment Division
Responsibility Report
2014

	<u>Budget</u>	<u>Actual</u>	<u>Difference</u>
Sales	<u>\$900,000</u>	<u>\$880,000</u>	<u>\$20,000 U</u>
Variable costs			
Cost of goods sold	440,000	408,000	32,000 F
Selling and administrative	<u>60,000</u>	<u>61,000</u>	<u>1,000 U</u>
Total	<u>500,000</u>	<u>469,000</u>	<u>31,000 F</u>
Contribution margin	400,000	411,000	11,000 F
Controllable fixed costs			
Cost of goods sold	100,000	105,000	5,000 U
Selling and administrative	<u>90,000</u>	<u>66,000</u>	<u>24,000 F</u>
Total	<u>190,000</u>	<u>171,000</u>	<u>19,000 F</u>
Controllable margin	<u>\$210,000</u>	<u>\$240,000</u>	<u>\$30,000 F</u>

(b) $(\$240,000 - \$90,000) / \$1,000,000 = \underline{15\%}$

EXERCISE 10-17

- (a) Controllable margin = $(\$3,000,000 - \$1,980,000 - \$600,000) = \$420,000$
 ROI = $\$420,000 \div \$5,000,000 = 8.4\%$
- (b) 1. Contribution margin percentage is 34%, or $(\$1,020,000 \div \$3,000,000)$
 Increase in controllable margin = $\$320,000 \times 34\% = \$108,800$
 ROI = $(\$420,000 + \$108,800) \div \$5,000,000 = 10.6\%$
2. $(\$420,000 + \$150,000) \div \$5,000,000 = 11.4\%$
3. $\$420,000 \div (\$5,000,000 - \$200,000) = 8.75\%$

EXERCISE 10-18

(a)

DINKLE AND FRIZELL DENTAL CLINIC
Preventive Services
Responsibility Report
For the Month Ended May 31, 2014

	Budget	Actual	Difference Favorable F Unfavorable U
Service revenue	<u>\$39,000</u>	<u>\$40,000</u>	<u>\$1,000 F</u>
Variable costs			
Filling materials	4,900	5,000	100 U
Novocain	3,800	3,900	100 U
Dental assistant wages	2,500	2,500	0
Supplies	2,250	1,900	350 F
Utilities	390	500	110 U
Total variable costs	<u>13,840</u>	<u>13,800</u>	<u>40 F</u>
Contribution margin	<u>25,160</u>	<u>26,200</u>	<u>1,040 F</u>
Controllable fixed costs			
Dentist salary	9,400	9,800	400 U
Equipment depreciation	6,000	6,000	0
Total controllable fixed costs	<u>15,400</u>	<u>15,800</u>	<u>400 U</u>
Controllable margin	<u>\$ 9,760</u>	<u>\$10,400</u>	<u>\$ 640 F</u>
Return on investment*	<u>12.2%</u>	<u>13.0%</u>	<u>0.8% F</u>

*Average investment = $(\$82,400 + \$77,600) \div 2 = \$80,000$

Budget ROI = $\$9,760 \div \$80,000$

Actual ROI = $\$10,400 \div \$80,000$

ROI Difference = $\$640 \div \$80,000$

EXERCISE 10-18 (Continued)

(b)

MEMO

TO: Drs. Reese Dinkle and Anita Frizell

FROM: Student

SUBJECT: Deficiencies in the Current Responsibility Reporting System

The current reporting system has the following deficiencies:

- 1. It does not clearly show both budgeted goals and actual performance.**
- 2. It does not indicate the contribution margin generated by the center, showing the amount available to go towards covering controllable fixed costs.**
- 3. It does not report only those costs controllable by the manager of the center. Instead, it includes both controllable and common fixed costs. This results in the center appearing to be unprofitable.**
- 4. It does not indicate the return on investment earned by the center.**

All of these deficiencies have been addressed in the recommended responsibility report attached. As can be seen from that report, the Preventive Services center is profitable. The service revenues generated in this center are adequate to cover all of its costs, both variable and controllable fixed costs, and contribute toward the covering of the clinic's common fixed costs. In addition, the report indicates the return on investment earned by the center and that it exceeds the budget goal.

EXERCISE 10-19

Planes:

ROI = Controllable margin ÷ Average operating assets

13% = Controllable margin ÷ \$25,000,000

Controllable margin = \$25,000,000 X 13%
= \$3,250,000

Contribution margin = Controllable margin + Controllable fixed costs

= \$3,250,000 + \$1,500,000

= \$4,750,000

Service revenue = Contribution margin + Variable costs

= \$4,750,000 + \$5,500,000

= \$10,250,000

Taxis:

ROI = Controllable margin ÷ Average operating assets

10% = \$80,000 ÷ Average operating assets

Average operating assets = \$80,000 ÷ 10%
= \$800,000

Controllable margin = Contribution margin – Controllable fixed costs

\$80,000 = \$250,000 – Controllable fixed costs

Controllable fixed costs = \$250,000 – \$80,000
= \$170,000

Contribution margin = Service revenue – Variable costs

\$250,000 = \$500,000 – Variable costs

Variable costs = \$500,000 – \$250,000
= \$250,000

EXERCISE 10-19 (Continued)

Limos:

$$\begin{aligned}\text{ROI} &= \text{Controllable margin} \div \text{Average operating assets} \\ &= \$240,000 \div \$1,500,000 \\ &= \underline{16\%}\end{aligned}$$

$$\begin{array}{rcll}\text{Controllable margin} & = & \text{Contribution margin} & - \text{Controllable fixed costs} \\ \$240,000 & = & \$480,000 & - \text{Controllable fixed costs} \\ \text{Controllable fixed costs} & & & = \$480,000 - \$240,000 \\ & & & = \underline{\$240,000}\end{array}$$

$$\begin{array}{rcll}\text{Contribution margin} & = & \text{Service revenue} & - \text{Variable costs} \\ \$480,000 & = & \text{Service revenue} & - \$300,000 \\ \text{Sales} & = & \$480,000 & + \$300,000 \\ & = & \underline{\$780,000}\end{array}$$

*EXERCISE 10-20

- (a) North Division: $\text{ROI} = \$140,000 \div \$1,000,000 = 14\%$
West Division: $\text{ROI} = \$360,000 \div \$2,000,000 = 18\%$
South Division: $\text{ROI} = \$210,000 \div \$1,500,000 = 14\%$

- (b) North Division:
Residual Income = $\$140,000 - (.13 \times \$1,000,000) = \$10,000$

West Division:
Residual Income = $\$360,000 - (.16 \times \$2,000,000) = \$40,000$

South Division:
Residual Income = $\$210,000 - (.10 \times \$1,500,000) = \$60,000$

)

***EXERCISE 10-20 (Continued)**

- (c) 1. If ROI is used to measure performance, only the North Division (with a 14% ROI) and the South Division (with a 14% ROI) would make the additional investment that provides a 16% ROI. The West Division presently earns an 18% return ($\$360,000 \div \$2,000,000$), and therefore would decline the investment.
2. If residual income is used to measure performance, all three divisions would probably make the additional investment because each would realize an increase in residual income.

***EXERCISE 10-21**

(a)
$$\begin{array}{rcl} \text{ROI} & = & \text{Controllable margin} \div \text{Average operating assets} \\ 20\% & = & \$200,000 \div \text{Average operating assets} \\ \text{Average operating assets} & = & \$1,000,000 \end{array}$$

(b)
$$\begin{array}{rcl} \text{Controllable margin} & - & (\text{Minimum rate of return} \times \text{Average operating assets}) = \text{Residual income} \\ \$200,000 & - & (\text{Minimum rate of return} \times \$1,000,000) = \$100,000 \\ \$100,000 & = & \text{Minimum rate of return} \times \$1,000,000 \\ \text{Minimum rate of return} & = & 10\% \end{array}$$

(c)
$$\begin{array}{rcl} \text{Controllable margin} & - & (\text{Minimum rate of return} \times \text{Average operating assets}) = \text{Residual income} \\ \text{Controllable margin} & - & (13\% \times \$1,200,000) = \$204,000 \\ \text{Controllable margin} & = & \$360,000 \end{array}$$

(d)
$$\begin{array}{rcl} \text{ROI} & = & \text{Controllable margin} \div \text{Average operating assets} \\ 30\% & = & \$360,000 \div \$1,200,000 \end{array}$$

SOLUTIONS TO PROBLEMS

PROBLEM 10-1A

(a) **COOK COMPANY**
Packaging Department
Monthly Manufacturing Overhead Flexible Budget
For the Year 2014

Activity level				
Direct labor hours	<u>27,000</u>	<u>30,000</u>	<u>33,000</u>	<u>36,000</u>
Variable costs				
Indirect labor (\$.42)*	\$11,340	\$12,600	\$13,860	\$15,120
Indirect materials (\$.30)	8,100	9,000	9,900	10,800
Repairs (\$.18)	4,860	5,400	5,940	6,480
Utilities (\$.24)	6,480	7,200	7,920	8,640
Lubricants (\$.06)	<u>1,620</u>	<u>1,800</u>	<u>1,980</u>	<u>2,160</u>
Total variable costs (\$1.20)	<u>32,400</u>	<u>36,000</u>	<u>39,600</u>	<u>43,200</u>
Fixed costs				
Supervision**	8,000	8,000	8,000	8,000
Depreciation	6,000	6,000	6,000	6,000
Insurance	2,500	2,500	2,500	2,500
Rent	2,000	2,000	2,000	2,000
Property taxes	<u>1,500</u>	<u>1,500</u>	<u>1,500</u>	<u>1,500</u>
Total fixed costs	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>
Total costs	<u>\$52,400</u>	<u>\$56,000</u>	<u>\$59,600</u>	<u>\$63,200</u>

*\$126,000/300,000

**\$96,000/12

PROBLEM 10-1A (Continued)

(b)

COOK COMPANY
Packaging Department
Manufacturing Overhead Flexible Budget Report
For the Month Ended October 31, 2014

	<u>Budget at</u>	<u>Actual Costs</u>	<u>Difference</u>
Direct labor hours (DLH)	<u>27,000 DLH</u>	<u>27,000 DLH</u>	<u>Favorable F</u> <u>Unfavorable U</u>
Variable costs			
Indirect labor	\$11,340	\$12,432	\$1,092 U
Indirect materials	8,100	7,680	420 F
Repairs	4,860	4,800	60 F
Utilities	6,480	6,840	360 U
Lubricants	1,620	1,920	300 U
Total variable costs	<u>32,400</u>	<u>33,672</u>	<u>1,272 U</u>
Fixed costs			
Supervision	8,000	8,000	0
Depreciation	6,000	6,000	0
Insurance	2,500	2,460	40 F
Rent	2,000	2,000	0
Property taxes	1,500	1,500	0
Total fixed costs	<u>20,000</u>	<u>19,960</u>	<u>40 F</u>
Total costs	<u>\$52,400</u>	<u>\$53,632</u>	<u>\$1,232 U</u>

(c) The overall performance of management was slightly unfavorable. However, none of the unfavorable differences exceeded 10% of budget except for lubricants (19%).

PROBLEM 10-2A

(a) **ZELMER COMPANY**
Monthly Manufacturing Overhead Flexible Budget
Ironing Department
For the Year 2014

Activity level				
Direct labor hours	<u>35,000</u>	<u>40,000</u>	<u>45,000</u>	<u>50,000</u>
Variable costs				
Indirect labor (\$.40)	\$14,000	\$16,000	\$18,000	\$20,000
Indirect materials (\$.50)	17,500	20,000	22,500	25,000
Factory utilities (\$.30)	10,500	12,000	13,500	15,000
Factory repairs (\$.20)	<u>7,000</u>	<u>8,000</u>	<u>9,000</u>	<u>10,000</u>
Total variable costs (\$1.40)	<u>49,000</u>	<u>56,000</u>	<u>63,000</u>	<u>70,000</u>
Fixed costs				
Supervision	4,000	4,000	4,000	4,000
Depreciation	1,500	1,500	1,500	1,500
Insurance	1,000	1,000	1,000	1,000
Rent	<u>2,500</u>	<u>2,500</u>	<u>2,500</u>	<u>2,500</u>
Total fixed costs	<u>9,000</u>	<u>9,000</u>	<u>9,000</u>	<u>9,000</u>
Total costs	<u>\$58,000</u>	<u>\$65,000</u>	<u>\$72,000</u>	<u>\$79,000</u>

PROBLEM 10-2A (Continued)

(b)

ZELMER COMPANY
Ironing Department
Manufacturing Overhead Flexible Budget Report
For the Month Ended June 30, 2014

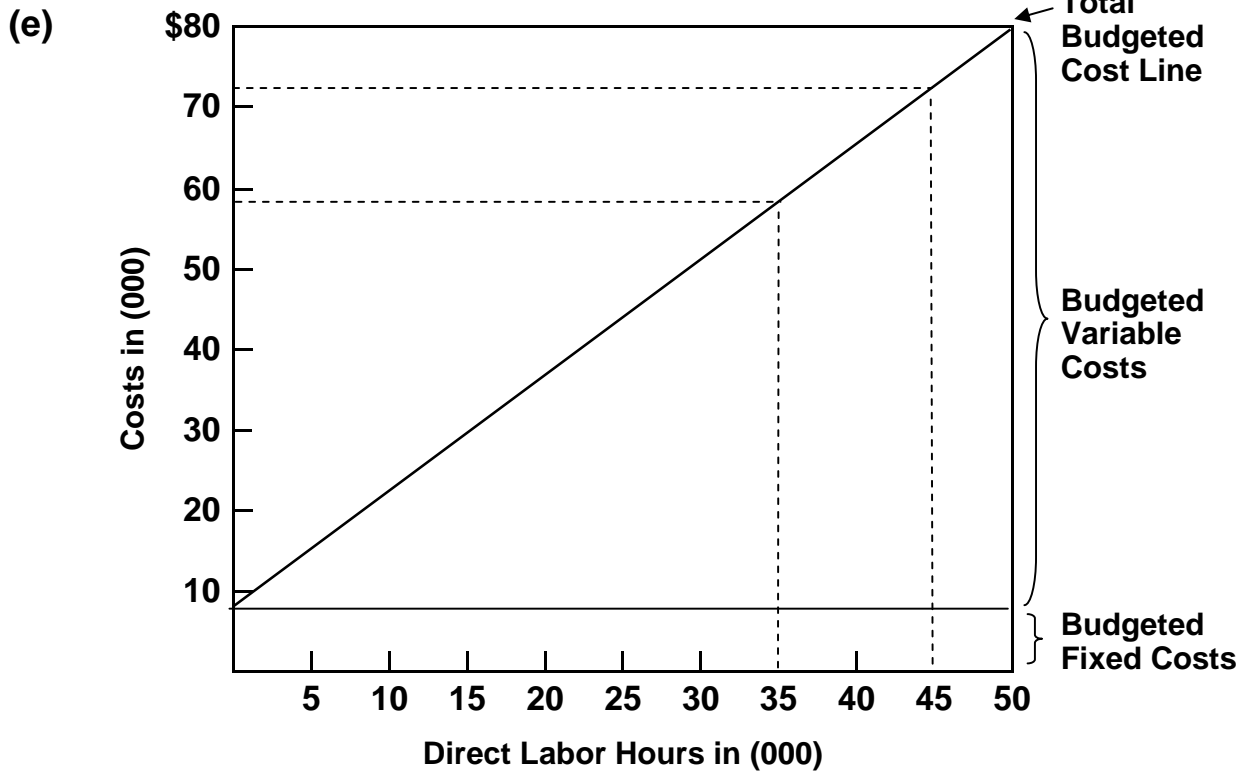
	Budget at	Actual Costs	Difference
Direct labor hours (DLH)	<u>41,000 DLH</u>	<u>41,000 DLH</u>	Favorable F Unfavorable U
Variable costs			
Indirect labor	\$16,400 (1)	\$18,040 (5)	\$1,640 U
Indirect materials	20,500 (2)	19,680 (6)	820 F
Factory utilities	12,300 (3)	13,120 (7)	820 U
Factory repairs	<u>8,200 (4)</u>	<u>10,250 (8)</u>	<u>2,050 U</u>
Total variable costs	<u>57,400</u>	<u>61,090</u>	<u>3,690 U</u>
Fixed costs			
Supervision*	4,000	4,000	0
Depreciation	1,500	1,500	0
Insurance	1,000	1,000	0
Rent	<u>2,500</u>	<u>2,500</u>	<u>0</u>
Total fixed costs	<u>9,000</u>	<u>9,000</u>	<u>0</u>
Total costs	<u>\$66,400</u>	<u>\$70,090</u>	<u>\$3,690 U</u>

(1) 41,000 X \$0.40 (2) 41,000 X \$0.50 (3) 41,000 X \$0.30 (4) 41,000 X \$0.20
(5) 41,000 X \$0.44 (6) 41,000 X \$0.48 (7) 41,000 X \$0.32 (8) 41,000 X \$0.25

*\$48,000/12

- (c) The manager was ineffective in controlling variable costs (\$3,690 U). Fixed costs were effectively controlled.
- (d) The formula is fixed costs of \$9,000 plus total variable costs of \$1.40 per direct labor hour.

PROBLEM 10-2A (Continued)



PROBLEM 10-3A

(a) The formula is fixed costs \$35,000 plus variable costs of \$2.75 per unit (\$165,000 ÷ 60,000 units).

(b)

HILL COMPANY
Assembling Department
Flexible Budget Report
For the Month Ended August 31, 2014

	Budget at <u>58,000 Units</u>	Actual Costs <u>58,000 Units</u>	Difference <u>Favorable F</u> <u>Unfavorable U</u>
Units			
Variable costs*			
Direct materials (\$.80 X 58,000)	\$ 46,400	\$ 47,000	\$ 600 U
Direct labor (\$.90 X 58,000)	52,200	51,200	1,000 F
Indirect materials (\$.40 X 58,000)	23,200	24,200	1,000 U
Indirect labor (\$.30 X 58,000)	17,400	17,500	100 U
Utilities (\$.25 X 58,000)	14,500	14,900	400 U
Maintenance (\$.10 X 58,000)	<u>5,800</u>	<u>6,200</u>	<u>400 U</u>
Total variable (\$2.75 X 58,000)	<u>159,500</u>	<u>161,000</u>	<u>1,500 U</u>
Fixed costs			
Rent	12,000	12,000	0
Supervision	17,000	17,000	0
Depreciation	<u>6,000</u>	<u>6,000</u>	<u>0</u>
Total fixed	<u>35,000</u>	<u>35,000</u>	<u>0</u>
Total costs	<u>\$194,500</u>	<u>\$196,000</u>	<u>\$1,500 U</u>

*Note that the per unit variable costs are computed by taking the budget amount at 60,000 units and dividing it by 60,000. For example, direct materials per unit is therefore \$0.80 or $\frac{\$48,000}{60,000}$.

This report provides a better basis for evaluating performance because the budget is based on the level of activity actually achieved. The manager should be criticized because every variable cost was over budget except for direct labor.

PROBLEM 10-3A (Continued)

**(c) HILL COMPANY
Assembling Department
Flexible Budget Report
For the Month Ended September 30, 2014**

Units	Budget at <u>64,000 Units</u>	Actual Costs <u>64,000 Units</u>	Difference
			Favorable F Unfavorable U
Variable costs			
Direct materials (.80 X 64,000)	\$ 51,200	\$ 51,700	\$ 500 U
Direct labor (\$.90 X 64,000)	57,600	56,320	1,280 F
Indirect materials (\$.40 X 64,000)	25,600	26,620	1,020 U
Indirect labor (\$.30 X 64,000)	19,200	19,250	50 U
Utilities (\$.25 X 64,000)	16,000	16,390	390 U
Maintenance (\$.10 X 64,000)	<u>6,400</u>	<u>6,820</u>	<u>420 U</u>
Total variable costs	<u>176,000</u>	<u>177,100</u>	<u>1,100 U</u>
Fixed costs			
Rent	12,000	12,000	0
Supervision	17,000	17,000	0
Depreciation	<u>6,000</u>	<u>6,000</u>	<u>0</u>
Total fixed costs	<u>35,000</u>	<u>35,000</u>	<u>0</u>
Total costs	<u>\$211,000</u>	<u>\$212,100</u>	<u>\$1,100 U</u>

The manager's performance was slightly better in September than it was in August. However, each variable cost was slightly over budget again except for direct labor.

Note that actual variable costs in September were 10% higher than the actual variable costs in August. Therefore to find the actual variable costs in September, the actual variable costs in August must be increased 10% as follows:

	August (actual)	September (actual)
Direct materials	\$ 47,000 X 110%	= \$ 51,700
Direct labor	51,200 X 110%	56,320
Indirect materials	24,200 X 110%	26,620
Indirect labor	17,500 X 110%	19,250
Utilities	14,900 X 110%	16,390
Maintenance	<u>6,200 X 110%</u>	<u>6,820</u>
	<u>\$161,000</u>	<u>\$177,100</u>