

Determine the total dollar amounts for the above items that would appear in a flexible budget at the following volume levels, assuming that both levels are within the relevant range:

- 8,000-unit level of sales and production
- 12,000-unit level of sales and production

(Hint: You must first determine the unit selling price and certain unit costs.)

E7-8 Preparing a flexible budget

LO3



Using the following per-unit and total amounts, prepare a flexible budget at the 14,000-, 15,000-, and 16,000-unit levels of production and sales for Earthen Products Inc.:

Selling price per unit.....	\$ 75.00
Direct materials per unit.....	\$ 24.00
Direct labor per unit.....	\$ 7.50
Variable factory overhead per unit.....	\$ 15.00
Fixed factory overhead.....	\$75,000
Variable selling and administrative expense per unit.....	\$ 12.00
Fixed selling and administrative expense.....	\$80,000

E7-9 Preparing a performance report

LO3



Riviera Manufacturing, Inc., has the following flexible budget formulas and amounts:

Sales.....	\$ 25 per unit
Direct materials.....	5 per unit
Direct labor.....	3 per unit
Variable factory overhead.....	4 per unit
Variable selling and administrative expense.....	1 per unit
Fixed factory overhead.....	\$25,000 per month
Fixed selling and administrative expense.....	\$20,000 per month

Actual results for May for the production and sale of 5,000 units were as follows:

Sales.....	\$120,000
Direct materials.....	26,000
Direct labor.....	14,000
Variable factory overhead.....	25,500
Variable selling and administrative expense.....	5,500
Fixed factory overhead.....	26,750
Fixed selling and administrative expense.....	19,800

Prepare a performance report for May that includes the identification of the favorable and unfavorable variances.

E7-10 Preparing a performance report

LO3

Merriman Manufacturing Inc. has the following flexible budget formulas and amounts:

Direct labor hours required in production:

Department	Hours per Unit	Standard Cost
Forming	0.50	\$18 per hour
Finishing	1.00	\$15 per hour

Prepare the following:

- A production budget for May.
- A direct materials budget for May.
- A direct labor budget for May.

P7-2 Sales, production, direct materials, direct labor, and factory overhead budgets (similar to Self-Study Problem 1)

Royal Tire Co.'s budgeted unit sales for the year 2013 were:

Passenger-car tires	120,000
Truck tires	25,000

The budgeted selling price for truck tires was \$200 per tire, and for passenger car tires it was \$65 per tire. The beginning finished goods inventories were expected to be 2,000 truck tires and 5,000 passenger tires, for a total cost of \$326,478, with desired ending inventories at 2,500 and 6,000, respectively, with a total cost of \$400,510. There was no anticipated beginning or ending work-in-process inventory for either type of tire. The standard materials quantities for each type of tire were as follows:

	Truck	Passenger Car
Rubber	30 lb	10 lb
Steel belts	4 lb	1.5 lb

The purchase prices of rubber and steel were \$2 and \$3 per pound, respectively. The desired ending inventories for rubber and steel were 60,000 and 6,000 lb, respectively. The estimated beginning inventories for rubber and steel were 75,000 and 7,000 lb, respectively. The direct labor hours required for each type of tire were as follows:

	Molding Department	Finishing Department
Truck tire	0.25	0.15
Passenger car tire	0.10	0.05

The direct labor rate for each department is as follows:

Molding Department	\$15 per hour
Finishing Department	\$13 per hour

Budgeted factory overhead costs for 2013 were as follows:

Indirect materials	\$198,500
Indirect labor	213,200
Depreciation of building and equipment	157,500
Power and light	122,900
Total	<u>\$692,100</u>

LO2



Required:

Prepare each of the following budgets for Royal for the year ended 2013:

1. Sales budget.
2. Production budget.
3. Direct material budget.
4. Direct labor budget.
5. Factory overhead budget.
6. Cost of goods sold budget.

P7-3**Selling and administrative expenses budget and budgeted income statement**

Budgeted selling and administrative expenses for Royal Tire Co. in P7-2 for the year ended December 31, 2013, were as follows:

Advertising expense	\$942,000
Office rent expense	125,000
Office salaries expense	821,000
Office supplies expense	45,500
Officers' salaries expense	661,000
Sales salaries expense	868,000
Telephone and fax expense	33,500
Travel expense	443,000

Required:

1. Prepare a selling and administrative expense budget, in good form, for the year 2013.
2. Using the information above and the budgets prepared in P7-2, prepare a budgeted income statement for the year 2013, assuming an income tax rate of 40%.

P7-4**Sales, production, direct materials, direct labor, and factory overhead budgets (similar to Self-Study Problem 1)**

Wicker Works Inc.'s budgeted unit sales for the year 2013 were:

Tables	30,000
Chairs	120,000

The budgeted selling price for tables was \$175 per table, and it was \$75 per chair. The beginning finished goods inventories were expected to be 1,000 tables and 4,000 chairs, for a total cost of \$240,000, with desired ending inventories at 1,500 and 6,000, respectively, with a total cost of \$360,000. There was no anticipated beginning or ending work-in-process inventory for either item. The standard materials quantities for each item were as follows:

	Table	Chair
Rattan	10 yd	6 yd
Binding cane	6 yd	3 yd

The purchase prices of rattan and binding cane were \$5 and \$3 per yard, respectively. The desired ending inventories for

LO2**LO2****P7**

2. Using the information above and the budgets prepared in P7-4, prepare a budgeted income statement for the year 2013, assuming an income tax rate of 30%.

P7-6 Preparing a flexible budget

Use the information in Figure 7-12 of the chapter.

Required:

Prepare flexible budgets for the production and sale of 29,000 units and 31,000 units, respectively.

P7-7 Preparing a performance report

Use the flexible budget prepared in P7-6 for the 31,000-unit level and the actual operating results listed below for the 31,000-unit level.

Required:

1. Prepare a performance report.
2. List the major reasons why the actual operating income at 31,000 units differs from the master budget operating income at 30,000 units in Figure 7-12.
3. Given the level that the company operated at, how was its cost control?

Item	
Sales.....	\$4,800,000
Direct materials:	
Lumber.....	633,000
Paint.....	127,500
Direct labor:	
Cutting.....	115,200
Assembly.....	75,300
Painting.....	47,100
Variable factory overhead.....	222,905
Variable selling and administrative expense.....	777,400
Fixed factory overhead.....	210,500
Fixed selling and administrative expense.....	765,800

P7-8 Preparing a performance report

Use the flexible budget prepared in P7-6 for the 29,000-unit level of activity and the actual operating results listed below for the 29,000-unit level.

Required:

1. Prepare a performance report.
2. List the major reasons why the actual operating income at 29,000 units differs from the master budget operating income at 30,000 units in Figure 7-12.
3. Given the level that the company operated at, how was its cost control?

9,000 units, the actual production costs should be greater than the amount budgeted for 9,000 units because certain manufacturing expenses, such as direct materials, vary with the volume of units produced.

The flexible budget is influenced by the presence of fixed and variable costs. Recall that **fixed costs** are those costs that do not change in total as production changes over a given range of activity. These expenses are a function of time, and generally they will be incurred regardless of the level of production. For example, such expenses as straight-line depreciation, insurance, property taxes, and supervisory salaries will remain the same in dollar total, except in the extreme case of a major change in production that requires more or fewer machines, facilities, and supervisory personnel.

Variable costs vary in total dollar amount in proportion to any change in production or sales volume. These costs may include such items as direct materials, direct labor, factory overhead expenses such as supplies, the electricity to run the machines, and repair costs, and selling and administrative expenses such as sales commissions and copying charges. It is because of these variable items that the total cost or revenue will differ from amounts in the master budget, when the actual level of production or sales volume is different from the master budget level. For example, if a manufacturer has budgeted direct materials cost of \$50,000 based on budgeted production of 5,000 units for the month, but the actual production is 6,000 units, there will be little value in comparing the actual direct materials cost incurred with the \$50,000 in the master budget. One would expect that if the actual units produced were greater than 5,000, then the direct materials cost would be greater than \$50,000. A flexible budget, however, would be useful because it would indicate the budgeted direct materials cost for the 6,000 units of production achieved. This would enable management to determine how well direct materials costs were controlled, given the actual level of production attained.

Preparing the Flexible Budget

Assume that Scottsdale Styles' budgeted sales of 30,000 tables in Figure 7-3 were not met; actual sales of tables were 28,000 units and dollar sales were \$4,250,000, not the budgeted sales of \$4,500,000. If Scottsdale's management wanted to know how good of a job it did generating revenue, given the number of units that were actually sold, the master budget numbers would not be helpful. For an "apples to apples" comparison of budgeted and actual sales revenue at the same unit volume, the accountant would need to prepare a flexible budget that would be useful within a relevant range of activity. The flexible budget in Figure 7-12 assumes that the relevant range within which the master budget cost and revenue relationships would hold is between 28,000 and 32,000 tables per year, and it only includes sales revenue, direct materials, and direct labor broken out in detail, using the budgeted selling price and unit costs for Scottsdale Styles presented earlier in the chapter. To reduce the level of detail in the example, the factory overhead and selling and administrative expenses in the

Figure 7-12 Flexible Budget for Production and Sale of Tables

	A	B	C	D
1 Item	28,000 units	30,000 units	32,000 units	
2 Sales (\$150 per unit)	\$4,200,000	\$4,500,000	\$4,800,000	
3 Direct materials:				
4 Lumber (\$20 per unit)	560,000	600,000	640,000	
5 Paint (\$4 per unit)	112,000	120,000	128,000	
6 Direct labor:				
7 Cutting (\$3.75 per unit)	105,000	112,500	120,000	
8 Assembly (\$2.40 per unit)	67,200	72,000	76,800	
9 Painting (\$1.50 per unit)	42,000	45,000	48,000	
10 Variable factory overhead (\$6.93 per unit)	194,040	207,900	221,760	
11 Variable selling and administrative expense	722,120	773,700	825,280	
12 (\$25.79 per unit)				
13 Contribution margin	\$2,397,640	\$2,568,900	\$2,740,160	
14 Fixed factory overhead	207,825	207,825	207,825	
15 Fixed selling and administrative expense	773,825	773,825	773,825	
16 Operating income	<u>\$1,415,990</u>	<u>\$1,587,250</u>	<u>\$1,758,510</u>	

Scottsdale Styles illustration are listed in total as variable and fixed, assuming that approximately half of each type of expense is variable, and half is fixed at the 30,000-unit master budget level. (Budgeting for factory overhead is covered in depth in the next section of this chapter.)

Note that the three levels of production and sales were chosen merely for illustrative purposes, and that a flexible budget could be prepared for any volume level within the relevant range of 28,000 to 32,000 units. Also note that the per-unit amounts for the variable costs came from the standard amounts per unit given in the master budget section of the chapter. For example, the \$20 per-unit cost for lumber was obtained by multiplying the standard quantity of 10 board feet per table by the standard cost of \$2 per board foot, and the \$3.75 per-unit cost for cutting labor was determined by multiplying the 0.25 standard hours per table by the standard labor cost of \$15 per hour.

Preparing a Performance Report Based on Flexible Budgeting

In preparing the performance report for the production and sale of tables in Figure 7-13, the actual revenue and expense amounts are assumed. (Note that for ease of illustration, unlike the master budget illustration, it is assumed that the number of units produced equals the number of units sold so that there are no complications related to inventory level changes.) The budgeted revenue and expense amounts were taken from the flexible budget at the 28,000-unit level in Figure 7-12.

Note that the variance for the sales revenue was \$50,000 favorable. Since the comparison of budgeted and actual revenue is at the same 28,000-unit level, the actual selling price per unit must have been greater than the budgeted selling price of \$150 per table. In fact, the actual average selling price was \$151.80 (\$4,250,000/28,000). So, given the number of units sold, Scottsdale Styles obtained favorable selling prices. Recall that the master budget, however, planned for the sale of 30,000 units and