

ACCY 121  
Chapter 16 Practice Quiz  
Fundamentals of Variance Analysis (1)

101. The Hageness Company has had great difficulty in controlling overhead costs. At a recent convention, the president heard about a control device for overhead costs known as a flexible budget and she has hired you to implement this budgeting program. After some effort, you develop the following cost formulas for the company's machining department. These costs are based on a normal operating range of 15,000 to 23,000 machine-hours per month:

|                |   |
|----------------|---|
| Machine setup  | \$0.20 per machine-hour                         |
| Lubricants     | \$1.00 per machine-hour plus \$8,000 per month  |
| Utilities      | \$0.70 per machine-hour                         |
| Indirect labor | \$0.60 per machine-hour plus \$20,000 per month |
| Depreciation   | \$32,000 per month                              |

During March, the first month after your preparation of the above data, the machining department worked 18,000 machine-hours and produced 9,000 units of product. The actual costs of this production were:

|                |                  |
|----------------|------------------|
| Machine set-up | \$ 4,800         |
| Lubricants     | 24,500           |
| Utilities      | 12,000           |
| Indirect labor | 32,500           |
| Depreciation   | <u>32,500</u>    |
|                | <u>\$106,300</u> |

The department had originally been budgeted to work 19,000 machine-hours during March.

Required:

Prepare a performance report for the machining department for the month of March including columns for the (a) actual results, (b) flexible budget, (c) flexible budget variance, (d) master budget, and (e) sales activity variance.

105. Western Company manufactures special electrical equipment and parts. Western employs a standard cost accounting system with separate standards established for each product. A special transformer is manufactured in the Transformer Department. Production volume is measured by direct labor hours in this department and a flexible budget system is used to plan and control department overhead. Standard costs for the special transformer are determined annually in September for the coming year. The standard cost of a transformer was computed at \$57.00 as shown below.

|                   |          |          |                |
|-------------------|----------|----------|----------------|
| Direct materials: |          |          |                |
| Copper            | 3 spools | @ \$3.00 | 9.00           |
| Direct labor      | 4 hours  | @ \$7.00 | 28.00          |
| Variable overhead | 4 hours  | @ \$3.00 | 12.00          |
| Fixed overhead    | 4 hours  | @ \$2.00 | <u>8.00</u>    |
| Total             |          |          | <u>\$57.00</u> |

Overhead rates were based upon normal and expected monthly capacity, both of which were 4,000 direct labor hours. Practical capacity for this department is 5,000 direct labor hours per month. Variable overhead costs are expected to vary with the number of direct labor hours actually used.

During October, 900 transformers were produced. This was below expectations because a work stoppage occurred during contract negotiations with the labor force. Once the contract was settled, the wage rate was increased to \$7.25/hour and overtime was scheduled in an attempt to catch up to expected production levels.

The following costs were incurred in October:

|                   |                                       |
|-------------------|---------------------------------------|
| Direct Materials: |                                       |
| Copper:           | purchased 2,600 spools @ \$3.08/spool |
|                   | Used: 2,600 spools                    |
| Direct labor:     |                                       |
| Regular time      | 2,000 hours @ \$7.00                  |
| Overtime          | 1,400 hours @ \$7.25                  |

600 of the 1,400 hours were subject to overtime premium. The total overtime premium is included in variable overhead in accordance with company accounting practices

|           |          |
|-----------|----------|
| Overhead: |          |
| Variable  | \$16,670 |
| Fixed     | \$ 8,800 |

- a. Direct materials price variance
- b. Direct material efficiency (quantity) variance
- c. Direct labor rate variance
- d. Direct labor efficiency variance
- e. Variable overhead spending variance
- f. Variable overhead efficiency variance
- g. Fixed overhead spending (budget) variance
- h. Production volume variance

## Variance Analysis Template

|                      | Actual Costs<br>AQ x AP |                   | Actual Inputs at<br>Standard Prices<br>AQ x SP |                     | Standard Quantity<br>Allowed for Actual<br>Output, at Standard<br>Price<br>SQ x SP |
|----------------------|-------------------------|-------------------|--|---------------------|--|
| Direct<br>Materials  |                         |                   |  |                     |  |
|                      |                         |                   |  |                     |  |
|                      |                         | Price Variance    |  | Quantity Variance   |  |
| Direct<br>Labor      | AH x AR                 |                   | AH x SR  |                     | SH x SR  |
|                      |                         |                   |  |                     |  |
|                      |                         | Rate Variance     |  | Efficiency Variance |  |
| Variable<br>Overhead | AH x AR                 |                   | AH x SR  |                     | SH x SR  |
|                      |                         |                   |  |                     |  |
|                      |                         | Spending Variance |  | Efficiency Variance |  |
| Fixed<br>Overhead    | Actual                  |                   | Flex Budget                                    |                     | Applied  |
|                      |                         |                   |  |                     |  |
|                      |                         | Budget Variance   |  | Volume Variance     |  |

|                           | <i>Actual<br/>Results</i> | <i>Flexible<br/>Budget<br/>Variance</i> | <i>Flexible<br/>Budget</i> | <i>Sales<br/>Activity<br/>Variance</i> | <i>Master<br/>Budget</i> |
|---------------------------|---------------------------|---|----------------------------|--|--------------------------|
| Units                     | <u>13,000</u>             |   | ?                          | 2000 U                                 | ?                        |
| Sales revenue             | ?                         | 13,000F                                 | ?                          | ?                                      | ?                        |
| Less:                     |                           |   |                            |  |                          |
| <Variable mfg. Costs>     | \$87,750                  |   | \$91,000                   | ?                                      | \$105,000                |
| <Variable mktg/adm.costs> | ?                         | \$3,250U                                | ?                          | \$4,000F                               | 30,000                   |
| Contribution margin       | \$52,000                  | ?                                       | ?                          | \$6,000U                               | ?                        |

54. What is the actual sales revenue?

- A. \$156,000.
- B. \$169,000.
- C. \$180,000.
- D. \$191,000.

55. What is the sales revenue in the flexible budget?

- A. \$139,000.
- B. \$156,000.
- C. \$169,000.
- D. \$180,000.

56. What is the flexible budget contribution margin?

- A. \$39,000.
- B. \$45,000.
- C. \$52,000.
- D. \$58,000.

57. What is the master budget sales revenue?

- A. \$124,000.
- B. \$148,000.
- C. \$156,000.
- D. \$180,000.

58. What is the master budget contribution margin?

- A. \$52,000.
- B. \$47,500.
- C. \$45,000.
- D. \$39,000.

The following information summarizes the standard cost for producing one metal tennis racket frame. In addition, the variances for one month's production are given. Assume that all inventory accounts have zero balances at the beginning of the month.

|                              | <i>Standard Cost<br/>Per Unit</i> | <i>Standard<br/>Monthly Costs</i> |
|------------------------------|-----------------------------------|-----------------------------------|
| Materials                    | \$ 4.00                           | \$ 8,400                          |
| Direct Labor 2 hrs. @ \$2.60 | 5.20                              | 10,920                            |
| Factory Overhead:            |                                   |                                   |
| Variable                     | 1.80                              | 3,780                             |
| Fixed                        | <u>5.00</u>                       | <u>10,500</u>                     |
|                              | <u>\$16.00</u>                    | <u>\$33,600</u>                   |

Variances:

|                   |                      |
|-------------------|----------------------|
| Material price    | 244.75 unfavorable   |
| Material quantity | 500.00 unfavorable   |
| Labor rate        | 520.00 favorable     |
| Labor efficiency  | 2,080.00 unfavorable |

69. What were the actual direct labor hours worked during the month?

- A. 5,000.
- B. 4,800.
- C. 4,200.
- D. 4,000.
- E. 3,400.

70. What were the actual quantity of materials used during the month?

- A. 2,156.
- B. 2,100.
- C. 2,225.
- D. 1,975.

71. What was the actual price paid for the direct material during the month, assuming all materials purchased were put into production?

- A. \$4.34.
- B. \$4.22.
- C. \$4.11.
- D. \$4.00.
- E. \$3.90.

## Variance Analysis Template

|                      | Actual Costs<br>AQ x AP |                   | Actual Inputs at<br>Standard Prices<br>AQ x SP |                     | Standard Quantity<br>Allowed for Actual<br>Output, at Standard<br>Price<br>SQ x SP |
|----------------------|-------------------------|-------------------|--|---------------------|--|
| Direct<br>Materials  |                         |                   |  |                     |  |
|                      |                         |                   |  |                     |  |
|                      |                         | Price Variance    |  | Quantity Variance   |  |
| Direct<br>Labor      | AH x AR                 |                   | AH x SR  |                     | SH x SR  |
|                      |                         |                   |  |                     |  |
|                      |                         | Rate Variance     |  | Efficiency Variance |  |
| Variable<br>Overhead | AH x AR                 |                   | AH x SR  |                     | SH x SR  |
|                      |                         |                   |  |                     |  |
|                      |                         | Spending Variance |  | Efficiency Variance |  |
| Fixed<br>Overhead    | Actual                  |                   | Flex Budget                                    |                     | Applied  |
|                      |                         |                   |  |                     |  |
|                      |                         | Budget Variance   |  | Volume Variance     |  |

## Variance Analysis Template

|                      | Actual Costs<br>AQ x AP |                   | Actual Inputs at<br>Standard Prices<br>AQ x SP |                     | Standard Quantity<br>Allowed for Actual<br>Output, at Standard<br>Price<br>SQ x SP |
|----------------------|-------------------------|-------------------|--|---------------------|--|
| Direct<br>Materials  |                         |                   |  |                     |  |
|                      |                         |                   |  |                     |  |
|                      |                         | Price Variance    |  | Quantity Variance   |  |
| Direct<br>Labor      | AH x AR                 |                   | AH x SR  |                     | SH x SR  |
|                      |                         |                   |  |                     |  |
|                      |                         | Rate Variance     |  | Efficiency Variance |  |
| Variable<br>Overhead | AH x AR                 |                   | AH x SR  |                     | SH x SR  |
|                      |                         |                   |  |                     |  |
|                      |                         | Spending Variance |  | Efficiency Variance |  |
| Fixed<br>Overhead    | Actual                  |                   | Flex Budget                                    |                     | Applied  |
|                      |                         |                   |  |                     |  |
|                      |                         | Budget Variance   |  | Volume Variance     |  |