Chapter 21 Alternate Demo Problem #1

**Problem #1**

**XYZ Company manufactures tables. A standard cost card for the manufacture of one table shows the following:**

 **Standard Cost per Table:**

|  |  |
| --- | --- |
| **Direct material: 4 sq. ft. @ $3/sq. ft.** | **$12** |
| **Direct labor: 2 hours @ $8/hr** |  **16** |
| **Total prime costs** | **$28** |
|  |  |

**In November, the company produced 1,000 tables. Actual production costs and quantities were:**

|  |  |
| --- | --- |
| **Direct material: 3,900 sq. ft. @ $3.10/sq. ft.** | **$12** |
| **Direct labor: 2,300 hours @ $7.80/hr** |  **16** |

***Required:***

**Calculate the price and quantity variances for direct material and direct labor.**

**Chapter 21 Alternate Demo Problem #2**

**Atlantic Company has the following monthly flexible budget information based on an expectation of operating at 80% of the factory’s capacity or 10,000 units produced:**

|  |  |
| --- | --- |
|  | **Operating Levels** |
|  | **70%** | **80%** | **90%** |
| **Budgeted output in units** | **8,000**  | **10,000**  |  **12,000**  |
| **Budgeted labor (standard hours)** | **16,000**  |  **20,000**  | **24,000**  |
| **Budgeted overhead** |  |  |  |
| **Variable overhead** | **$ 48,000**  | **$60,000**  | **$ 72,000**  |
| **Fixed overhead** |  **40,000**  | **40,000**  |  **40,000**  |
| **Total overhead** |  **$ 88,000**  | **$100,000**  |  **$112,000**  |

 **During the current month, the company operated at 70% of capacity and employees worked 16,500 hours and the flowing actual overhead costs were incurred:**

|  |  |
| --- | --- |
| **Variable overhead** |  **$ 47,300**  |
| **Fixed overhead** |  **41,000**  |
| **Total overhead** |  **$88,300**  |

**Required:**

1. **Compute the predetermined overhead rate per direct labor hour for variable overhead, fixed overhead, and total overhead.**
2. **Compute the variable overhead spending and efficiency variances.**
3. **Compute the fixed overhead spending and volume variance.Chapter 21 Alternate Demo Problem #1: Solution**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Materials Variances** |  |  |  |  |
| **Units produced……………………………………..** | **1,000** | **tables** |  |
| **X std. quantity of materials per unit…………..** | **X 4** | **Sq. ft per table** |
| **Standard quantity of materials for 1,000 tables** | **4,000** | **Sq ft** |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **AQ** |  | **3,900** | **Sq ft.** | **AQ** |  | **3,900** | **Sq ft.** | **SQ** |  | **4,000** | **Sq ft.** |
| **X AP** |  | **X $3.10** |  | **X SP** |  | **X 3.00** |  | **X SP** |  | **X 3.00** |  |
|  |  | **$12,090** |  |  |  | **$11,700** |  |  |  | **$12,000** |  |
|  |
|  **Price Variance** | **Quantity Variance**  |
|  |  | **($390)** | **U** |  | **$300** | **F** |  |  |
|  |  |  |  |  |
|  |  |  |  | **Total Materials Variance** |  |  |  |  |
|  |  |  |  |  |  | **($90)** | **U** |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Labor Variances** |  |  |  |  |
| **Units produced……………………………………..** | **1,000** | **tables** |  |
| **X standard direct labor hrs per unit…………..** | **X 2** | **hours** |
| **Standard quantity of hours for 1,000 tables** | **2,000** | **hours** |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **AQ** |  | **2,300** | **Hrs.** | **AQ** |  | **2,300** | **Hrs.** | **SQ** |  | **2,000** | **Hrs.** |
| **X AP** |  | **X $7.80** |  | **X SP** |  | **X 8.00** |  | **X SP** |  | **X 8.00** |  |
|  |  | **$17,940** |  |  |  | **$18,400** |  |  |  | **$16,000** |  |
|  |
|  **Price Variance** | **Quantity Variance**  |
|  |  | **$460** | **F** |  | **($2,400)** | **U** |  |  |
|  |  |  |  |  |
|  |  |  |  | **Total Materials Variance** |  |  |  |  |
|  |  |  |  |  |  | **($1,940)** | **U** |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Material Variances:** |  |  |  |
| **Quantity Variance:** |  |  |  |
|  **Standard units at standard price** | **4,000 ft @ $3.00 =** | **$12,000** |  |
|  **Actual units at standard price** | **3,900 ft @ $3.00 =** | **11,700** |  |
|  **Variance (favorable)** | **100 ft @ $3.00 =** |  | **$ 300** |
|  |  |  |  |
| **Price Variance:** |  |  |  |
|  **Actual units at actual price** | **3,900 ft @ $3.10 =** | **$12,090** |  |
|  **Actual units at standard price** | **3,900 ft @ $3.00 =** | **11,700** |  |
|  **Variance (unfavorable)** | **3,900 ft @ $0.10 =** |  | **390** |
| **Direct material cost variance (unfavorable)** |  |  | **$ 90** |
|  |  |  |  |
| **Labor Variances:** |  |  |  |
| **Efficiency (Quantity) Variance** |  |  |  |
|  **Actual hours at standard rate** | **2,300 hrs. @ $8.00 =** | **$18,400** |  |
|  **Standard hours at standard rate** | **2,000 hrs. @ $8.00 =** | **16,000** |  |
|  **Variance (unfavorable)** | **300 hrs. @ $8.00 =** |  | **$2,400** |
|  |  |  |  |
| **Rate (Price) Variance:** |  |  |  |
|  **Actual hours at standard rate** | **2,300 hrs. @ $8.00 =** | **$18,400** |  |
|  **Actual hours at actual rate** | **2,300 hrs. @ $7.80 =** | **17,940** |  |
|  **Variance (favorable)** | **2,300 hrs. @ $0.20 =** |  | **460** |
| **Direct labor cost variance (unfavorable)** |  |  | **$1,940** |

**Chapter 21 Alternate Demo Problem #2: Solution**

1. **Compute the predetermined overhead rates**

|  |  |
| --- | --- |
| **Overhead at operating level expected (80%) or 10,000 units** |  |
| **Variable Overhead Rate:** |  |  |  |  |
| **Expected Variable Overhead** |  **$ 60,000**  | **=** |  **$ 3.00**  | **per DLH** |
| **Expected Direct Labor Hours** |  **20,000**  |  |  |  |
| **Fixed Overhead Rate:** |  |  |  |  |
| **Expected Fixed Overhead** |  **$ 40,000**  | **=** |  **$ 2.00**  | **per DLH** |
| **Expected Direct Labor Hours** |  **20,000**  |  |  |  |
| **Total Overhead Rate:** |  |  |  |  |
| **Expected Total Overhead** |  **$100,000**  | **=** |  **$ 5.00**  | **per DLH** |
| **Expected Direct Labor Hours** |  **20,000**  |  |  |  |

|  |  |
| --- | --- |
| **2. Variable Overhead Variance Computations** |  |
| **Actual Variable** |  |  |  | **Applied Variable** |
| **Overhead** |  |  |  | **Overhead** |
|  |  |  |  |  |  |  |
|  **AH** |  |  **AH** |  **16,500**  |  |  **SH** |  **16,000**  |
| **x AVR** |  | **x SVR** |  **$ 3.00**  |  | **x SVR** |  **$ 3.00**  |
| **total** |  **$47,300**  |  |  **$49,500**  |  |  |  **$48,000**  |
|  |  |  |  |  |  |  |
|  | **Variable** |  |  | **Variable** |
|  | **Spending Variance** |  |  | **Efficiency Variance** |
|  |  **$ 2,200**  | **F** |  |  |  **$(1,500)** | **U** |

|  |  |
| --- | --- |
|  |  |
| **3. Fixed Overhead Variance Computations** |  |
| **Actual Fixed** |  |  |  | **Applied Fixed** |
| **Overhead** |  |  |  | **Overhead** |
|  |  |  |  |  |  **SH** |  **16,000**  |
|  |  | **From**  |  |  | **x SVR** |  **$ 2.00**  |
| **Given** |  **$41,000**  | **Budget** |  **$40,000** |  |  |  **$32,000**  |
|  |  |  |  |  |  |  |
|  |  **Fixed** |  |  |  **Fixed** |
|  |  **Spending Variance** |  |  | **Volume Variance** |
|  | **($1,000)**  | **U** |  |  |  **($8,000)** | **U** |