

12.

Award: 10.00 points

Problems? [Adjust credit](#) for all students.

The standard direct labor cost per unit for a company was \$21 (= \$14 per hour \times 1.5 hours per unit). During the period, actual direct labor costs amounted to \$136,500, 9,600 labor-hours were worked, and 5,600 units were produced.

Required:

Compute the direct labor price and efficiency variances for the period. **(Indicate the effect of each variance by selecting "F" for favorable, or "U" for unfavorable. If there is no effect, do not select either option.)**

Explanation:

Direct labor:

Actual costs = \$136,500

Actual inputs at standard price = $\$14 \times 9,600 = \$134,400$

Flexible budget (standard inputs allowed for good output) = $\$14 \times 1.5 \times 5,600 = \$117,600$

Price variance = $\$136,500 - \$134,400 = \$2,100$ U

Efficiency variance = $\$134,400 - \$117,600 = \$16,800$ U

13.

Award: 10.00 points

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The records of Norton, Inc. show the following for July:

Standard labor-hours allowed per unit of output	1.2
Standard variable overhead rate per standard direct labor-hour	\$ 45
Good units produced	60,000
Actual direct labor-hours worked	73,600
Actual total direct labor	\$2,370,000
Direct labor efficiency variance	\$ 48,000 U
Actual variable overhead	\$3,072,000

Required:

Compute the direct labor and variable overhead price and efficiency variances. **(Do not round intermediate calculations. Indicate the effect of each variance by selecting "F" for favorable, or "U" for unfavorable. If there is no effect, do not select either option.)**

Explanation:

Direct labor:

Actual costs = \$2,370,000

Actual inputs at standard price = $\$30^a \times 73,600 = \$2,208,000$

Flexible budget (standard inputs allowed for good output) = $\$30^a \times 1.2 \times 60,000 = \$2,160,000$

Price variance = $\$2,370,000 - \$2,208,000 = \$162,000$ U

Efficiency variance = $\$2,208,000 - \$2,160,000 = \$48,000$ U

Variable overhead:

Actual costs = \$3,072,000

Actual inputs at standard price = $\$45 \times 73,600 = \$3,312,000$

Flexible budget (standard inputs allowed for good output) = $\$45 \times 1.2 \times 60,000 = \$3,240,000$

Price variance = $\$3,072,000 - \$3,312,000 = \$240,000$ F

Efficiency variance = $\$3,312,000 - \$3,240,000 = \$72,000$ U

^aStandard labor wage rate

= [(Direct labor efficiency variance) ÷ Variable overhead efficiency variance] × \$45.

= $[\$48,000 \div \$72,000] \times \$45 = \30

14.

Award: 10.00 points

Problems? [Adjust credit](#) for all students.

Mint Company applies fixed overhead at the rate of \$1.50 per unit. For May, budgeted fixed overhead was \$604,500. The production volume variance amounted to \$4,500 unfavorable, and the price variance was \$15,000 favorable.

Required:

- a. What was the budgeted volume in units for May?
- b. What was the actual volume of units produced in May?
- c. What was the actual fixed overhead incurred for May?

Explanation:

a.

Budgeted volume = $\$604,500 \div \$1.50 \text{ per unit} = 403,000 \text{ units}$.

b.

Overhead applied = Budgeted overhead – Production volume variance

= $\$604,500 - \$4,500 = \$600,000$.

Actual volume = $\$600,000 \div \$1.50 \text{ per unit} = 400,000 \text{ units}$.

c.

Actual fixed overhead = Budgeted overhead + Overhead price variance

$$= \$604,500 - \$15,000 = \$589,500$$

16.

Award: 20.00 points

Problems? [Adjust credit](#) for all students.

The standard cost sheet for Chambers Company, which manufactures one product, follows:

Direct materials, 40 yards at \$2.00 per yard	\$ 80
Direct labor, 5 hours at \$20 per hour	100
Factory overhead applied at 80% of direct labor (variable costs = \$60; fixed costs = \$20)	80
Variable selling and administrative	64
Fixed selling and administrative	40
Total unit costs	<u>\$364</u>

Standards have been computed based on a master budget activity level of 28,800 direct labor-hours per month. Actual activity for the past month was as follows:

Materials used	228,000 yards at \$2.05 per yard
Direct labor	25,200 hours at \$20.40 per hour
Total factory overhead	\$444,000
Production	5,000 units

Required:

Compute variance analyses for the variable and fixed costs. Materials are purchased as they are used. **(Indicate the effect of each variance by selecting "F" for favorable, or "U" for unfavorable. If there is no effect, do not select either option.)**

Explanation:

Direct materials:

$$\text{Actual costs} = (\text{AP} \times \text{AQ}) = \$2.05 \times 228,000 \text{ yards} = \$467,400$$

$$\text{Actual inputs at standard price} = (\text{SP} \times \text{AQ}) = \$2.00 \times 228,000 \text{ yards} = \$456,000$$

$$\text{Flexible budget (Standard inputs allowed for good output)} = (\text{SP} \times \text{SQ}) = \$2.00 \times 40 \text{ yards} \times 5,000 \text{ units} = \$400,000$$

$$\text{Price variance} = \$467,400 - \$456,000 = \$11,400 \text{ U}$$

$$\text{Efficiency variance} = \$456,000 - \$400,000 = \$56,000 \text{ U}$$

Direct labor:

$$\text{Actual cost} = (\text{AP} \times \text{AQ}) = \$20.40 \times 25,200 \text{ hours} = \$514,080$$

$$\text{Actual inputs at standard price} = (\text{SP} \times \text{AQ}) = \$20 \times 25,200 \text{ hours} = \$504,000$$

$$\text{Flexible budget (Standard inputs allowed for good output)} = (\text{SP} \times \text{SQ}) = \$20 \times 5 \text{ hours} \times 5,000 \text{ units} = \$500,000$$

$$\text{Price variance} = \$514,080 - \$504,000 = \$10,080 \text{ U}$$

$$\text{Efficiency variance} = \$504,000 - \$500,000 = \$4,000 \text{ U}$$

Variable overhead:

$$\text{Actual inputs at standard price} = (\text{SP} \times \text{AQ}) = \$12^a \times 25,200 \text{ hours} = \$302,400$$

$$\text{Flexible budget (Standard inputs allowed for good output)} = (\text{SP} \times \text{SQ}) = \$12 \times 5 \text{ hours} \times 5,000 \text{ units} = \$300,000$$

$$\text{Efficiency variance} = \$302,400 - \$300,000 = \$2400 \text{ U}$$

Fixed overhead:

$$\text{Budget} = \$4^b \times 28,800 \text{ hours} = \$115,200$$

$$\text{Applied} = \$4 \times 5 \text{ hours} \times 5,000 \text{ units} = \$100,000$$

Production volume variance = $\$115,200 - \$100,000 = \$15,200 \text{ U}$

^a $\$12 \text{ per hour} = \$60 \text{ standard overhead per unit} \div 5 \text{ direct labor hours per unit.}$

^b $\$4 \text{ per hour} = \$20 \text{ standard overhead per unit} \div 5 \text{ direct labor hours per unit.}$

Note: The variable overhead and fixed overhead price variances cannot be determined. The total overhead price variance is $\$26,400 \text{ U}$ ($= \$444,000 - \$302,400 - \$115,200$).

17.

Award: 20.00 points

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J&W Corporation manufactures a new electronic game console. The current standard cost sheet for a game console follows:

Direct materials, ? kilograms at \$8 per kilogram	\$? per game
Direct labor, 0.75 hours at ? per hour	? per game
Overhead, 0.75 hours at ? per hour	? per game
Total costs	<u>\$39 per game</u>

Assume that the following data appeared in J&W's records at the end of the past month:

Actual production	48,000 units
Actual sales	45,000 units
Materials (112,500 kilograms)	\$157,500
Materials price variance	45,000 U
Materials efficiency variance	36,000 U
Direct labor price variance	27,360 U
Direct labor (34,200 hours)	574,560
Underapplied overhead (total)	18,000 U

There are no materials inventories.

Required:

a. Complete the standard cost sheet for a game console given below. Compute the direct labor efficiency variance. **(Do not round intermediate calculations. Round kilograms to 2 decimal**

places. Indicate the effect of each variance by selecting "F" for favorable, or "U" for unfavorable. If there is no effect, do not select either option.)

b. Assume that all production overhead is fixed and that the \$18,000 underapplied is the only overhead variance that can be computed. What are the actual and applied overhead amounts?

Explanation:

a.

Direct materials:

Actual costs ($AP \times AQ$) = \$945,000

Actual inputs at standard price ($SP \times AQ$) = $\$8^* \times 112,500 \text{ kilograms}^* = \$900,000$

Price variance = $\$900,000 - \$945,000 = \$45,000 \text{ U}$

$\$900,000 - \text{Flexible budget (Standard inputs allowed for good output) } (SP \times SQ) = \$36,000 \text{ U}^*$

Flexible Budget (Standard inputs allowed for good output) ($SP \times SQ$) = \$864,000

$\$8 \times ? \text{ kilograms} \times 48,000 \text{ units} = \$864,000$

$? \text{ kilograms} = \$864,000 \div \$384,000$

$? \text{ kilograms} = 2.25$

$2.25 \text{ kilograms} \times \$8 \text{ per kilogram} = \18 per game

Direct labor:

Actual costs ($AP \times AQ$) = $\$16.80 \times 34,200^* \text{ hours} = \$574,560^*$

$\$574,560 - \text{Actual inputs at Standard price} = \$27,360 \text{ U}$

Actual inputs at standard price = \$547,200

Actual inputs at standard price ($SP \times AQ$) = \$? per hour \times 34,200* hours = \$547,200

\$? per hour = \$16

0.75 hours \times \$16 per hour = \$12 per game

Flexible budget (Standard inputs allowed for good output) ($SP \times SQ$) = \$16 \times 0.75 hours \times 48,000* units = \$576,000

Efficiency variance = \$576,000 – \$547,200 = \$28,800 F

Overhead:

\$18 per game + \$12 per game + \$? per game = \$39* per game

\$? per game = \$9 per game

0.75 hours \times \$? per hour = \$9 per game

\$? per hour = \$12

b.

Applied = \$9 per game \times 48,000* units = \$432,000

Actual – \$432,000 = \$18,000 U

Actual = \$450,000