

Section 9 – price and efficiency variance

1. Mid City Products Inc. (MCP), developed standard costs for direct material and direct labor. In 2017, MCP estimated the following standard costs for one of their most popular products.

	<u>Budgeted quantity</u>	<u>Budgeted price</u>
Direct materials	6 pounds	\$4.25 per pound
Direct labor	0.50 hours	\$15.00 per hour

During September, MCP produced and sold 2,000 units using 12,400 pounds of direct materials at an average cost per pound of \$4.00 and 950 direct labor hours at an average wage of \$15.15 per hour.

The direct labor price variance during September is _____.

- A) \$750.00 unfavorable
- B) \$150.00 favorable
- C) \$142.50 unfavorable
- D) \$142.50 favorable

Answer: C

Explanation: Direct labor price variance = 950 dlh × (\$15.15 – \$15.00) = \$142.50 U

2. Mid City Products Inc. (MCP), developed standard costs for direct material and direct labor. In 2017, MCP estimated the following standard costs for one of their most popular products.

	<u>Budgeted quantity</u>	<u>Budgeted price</u>
Direct materials	4 pounds	\$7.25 per pound
Direct labor	0.60 hours	\$17.00 per hour

During September, MCP produced and sold 2,000 units using 8,200 pounds of direct materials at an average cost per pound of \$7.00 and 1,160 direct labor hours at an average wage of \$17.50 per hour.

The direct labor efficiency variance during September is _____.

- A) \$680 favorable
- B) \$700 unfavorable
- C) \$600 favorable
- D) \$100 unfavorable

Answer: A

Explanation: Direct labor efficiency variance = [1,160 dlh – (2,000 × 0.60)] × \$17.00 = \$680 F

Answer the following questions using the information below:

These questions refer to flexible-budget variance formulas with the following descriptions for the variables: A = Actual; B = Budgeted; P = Price; Q = Quantity.

Direct Materials Control		\$675,000
D) Accounts Payable Control	\$650,000	
Direct Materials Price Variance	\$25,000	
WIP Control		\$675,000

Answer: A

8. These questions refer to flexible-budget variance formulas with the following descriptions for the variables: A = Actual; B = Budgeted; P = Price; Q = Quantity. The best label for the formula $[(AP)(AQ) - (BP)(BQ)]$ is the _____.

- A) efficiency variance.
 B) price variance
 C) total flexible-budget variance
 D) spending variance

Answer: C

9. Handley Manufacturing Company has prepared the following flexible budget for August and is in the process of interpreting the variances. F denotes a favorable variance and U denotes an unfavorable variance.

	Flexible Budget	Variances	
		Price	Efficiency
Material A	\$44,000	\$1,000F	\$3,400U
Material B	66,000	200U	1,800F
Direct manufacturing labor	80,000	600U	2,300F

The most likely explanation of the above variances for Material A is that _____.

- A) a lower price than expected was paid for Material A
 B) higher-quality raw materials were used than were planned
 C) the company used a higher-priced supplier
 D) Material A used during September was \$2,000 less than expected

Answer: A

10. Handley Manufacturing Company has prepared the following flexible budget for August and is in the process of interpreting the variances. F denotes a favorable variance and U denotes an unfavorable variance.

	Flexible Budget	Variances	
		Price	Efficiency
Material A	\$45,000	\$1,100F	\$3,200U
Material B	61,000	800U	2,000F
Direct manufacturing labor	83,000	600U	2,500F

The actual amount spent for Material B was _____.

- A) \$58,200

- B) \$59,800
 C) \$61,000
 D) \$62,200

Answer: B

Explanation: $\$61,000 + \$800 \text{ U} - \$2,000 \text{ F} = \$59,800$

11. Handley Manufacturing Company has prepared the following flexible budget for August and is in the process of interpreting the variances. F denotes a favorable variance and U denotes an unfavorable variance.

	Flexible <u>Budget</u>	<u>Variances</u>	
		<u>Price</u>	<u>Efficiency</u>
Material A	\$48,000	\$1,900F	\$3,400U
Material B	69,000	800U	1,600F
Direct manufacturing labor	88,000	900U	2,200F

The actual amount spent for direct manufacturing labor was _____.

- A) \$88,000
 B) \$91,100
 C) \$89,300
 D) \$86,700

Answer: D

Explanation: $\$88,000 + \$900 \text{ U} - \$2,200 \text{ F} = \$86,700$

12. Handley Manufacturing Company has prepared the following flexible budget for August and is in the process of interpreting the variances. F denotes a favorable variance and U denotes an unfavorable variance.

	Flexible <u>Budget</u>	<u>Variances</u>	
		<u>Price</u>	<u>Efficiency</u>
Material A	\$40,000	\$1,600F	\$3,200U
Material B	68,000	500U	1,900F
Direct manufacturing labor	85,000	200U	2,700F

The most likely explanation of the above direct manufacturing labor variances is that _____.

- A) the average wage rate paid to employees was less than expected
 B) employees did not work as efficiently as expected to accomplish the job
 C) the company may have assigned more experienced employees this month than originally planned
 D) management may have a problem with budget slack and might be using lax standards for both labor-wage rates and expected efficiency

Answer: C

13. Midend's Camera Shop has prepared the following flexible budget for September and is in the process of interpreting the variances. F denotes a favorable variance and U

denotes an unfavorable variance.

	Flexible <u>Budget</u>	<u>Variances</u>	
		<u>Price</u>	<u>Efficiency</u>
Material A	\$27,000	\$2,000U	\$1,200F
Material B	32,000	400F	700U
Material C	46,000	1,800U	2,300F

The actual amount spent for Material A was _____.

- A) \$30,200
- B) \$26,200
- C) \$27,800
- D) \$23,800

Answer: C

Explanation: Actual amount spent for Material A = \$27,000 + \$2,000 U – \$1,200 F = \$27,800

14. Midend's Camera Shop has prepared the following flexible budget for September and is in the process of interpreting the variances. F denotes a favorable variance and U denotes an unfavorable variance.

	Flexible <u>Budget</u>	<u>Variances</u>	
		<u>Price</u>	<u>Efficiency</u>
Material A	\$26,000	\$1,200U	\$1,600F
Material B	39,000	400F	800U
Material C	46,000	1,400U	2,400F

The actual amount spent for Material B was _____.

- A) \$38,600
- B) \$37,800
- C) \$40,200
- D) \$39,400

Answer: D

Explanation: Actual amount spent for Material B = \$39,000 – \$400 F + \$800 U = \$39,400

15. Midend's Camera Shop has prepared the following flexible budget for September and is in the process of interpreting the variances. F denotes a favorable variance and U denotes an unfavorable variance.

	Flexible <u>Budget</u>	<u>Variances</u>	
		<u>Price</u>	<u>Efficiency</u>
Material A	\$29,000	\$1,200U	\$1,900F
Material B	37,000	800F	700U
Material C	44,000	1,500U	2,500F

The explanation that lower-quality materials were purchased is most likely for _____.

- A) Material A
- B) Material B
- C) Material C
- D) both Material A and C

Answer: B

16. The flexible-budget variance is the total of price variance and efficiency variance.

Answer: TRUE

17. The price variance is the difference between the actual price and the budgeted price of the input, multiplied by the actual quantity of input.

Answer: TRUE

18. For any actual level of output, the efficiency variance is the difference between actual quantity of input used and the budgeted quantity of input allowed to produce actual output, multiplied by the budgeted price.

Answer: TRUE

19. From the perspective of control, the direct materials price variance should be isolated at the time of sales.

Answer: FALSE

Explanation: From the perspective of control, the direct materials price variance should be isolated at the time of purchase of materials.

20. With a direct materials price variance of \$40,000 F and direct materials efficiency, direct manufacturing labor price, and direct labor efficiency variances of \$60,000 U, 20,000 U, and 15,000 U, the write-off to cost of goods sold if these are deemed immaterial would be a debit of \$55,000.

Answer: TRUE

21. Nancy's Draperies manufactures curtains. A certain window curtain requires the following:

Direct materials standard 10 square yards at \$5 per yard
 Direct manufacturing labor standard 5 hours at \$10

During the second quarter, the company made 1,500 curtains and used 14,000 square yards of fabric costing \$72,000. Direct labor totaled 7,600 hours for \$83,600.

Required:

- a. Compute the direct materials price and efficiency variances for the quarter.
- b. Compute the direct manufacturing labor price and efficiency variances for the quarter.

Answer:

- a. Direct materials variances:

$$\begin{aligned}\text{Actual unit cost} &= \$72,000/14,000 \text{ square yards} \\ &= \$5.14 \text{ per square yard}\end{aligned}$$

$$\begin{aligned}\text{Price variance} &= 14,000 \times (\$5.00 - \$5.14) \\ &= \$1,960 \text{ unfavorable}\end{aligned}$$

$$\begin{aligned}\text{Efficiency variance} &= \$5.00 \times [14,000 - (1,500 \times 10)] \\ &= \$5,000 \text{ favorable}\end{aligned}$$

b. Direct manufacturing labor variances:

$$\begin{aligned}\text{Actual labor rate} &= \$83,600/7,600 \\ &= \$11.00 \text{ per hour}\end{aligned}$$

$$\begin{aligned}\text{Price variance} &= 7,600 \times (\$11.00 - \$10.00) \\ &= \$7,600 \text{ unfavorable}\end{aligned}$$

$$\begin{aligned}\text{Efficiency variance} &= \$10.00 \times (7,600 - 7,500) \\ &= \$1,000 \text{ unfavorable}\end{aligned}$$

22. Fine Lumber Inc. mills and finishes furniture kits. A certain kit requires the following:

Direct materials standard 2 square yards at \$13.50 per yard

Direct manufacturing labor standard 1.5 hours at \$20.00 per hour

During the third quarter, the company made 1,500 kits and used 3,150 square yards of wood costing \$42,600. Direct labor totaled 2,100 hours for \$46,150.

Required:

- Compute the direct materials price and efficiency variances for the quarter.
- Compute the direct manufacturing labor price and efficiency variances for the quarter.

Answer:

a. Direct materials variances:

$$\begin{aligned}\text{Actual unit cost} &= \$42,600/3,150 \text{ square yards} \\ &= \$13.33 \text{ per square yard}\end{aligned}$$

$$\begin{aligned}\text{Price variance} &= 3,150 \times (\$13.50 - \$13.33) \\ &= \$535.50 \text{ favorable}\end{aligned}$$

$$\begin{aligned}\text{Efficiency variance} &= \$13.50 \times [3,150 - (1,500 \times 2)] \\ &= \$2,025 \text{ unfavorable}\end{aligned}$$

b. Direct manufacturing labor variances:

$$\begin{aligned}\text{Actual labor rate} &= \$46,150/2,100 \\ &= \$21.98 \text{ per hour}\end{aligned}$$

$$\begin{aligned}\text{Price variance} &= 2,100 \times (\$21.98 - \$20.00) \\ &= \$4,150 \text{ unfavorable}\end{aligned}$$

$$\begin{aligned}\text{Efficiency variance} &= \$20.00 \times (2,100 - (1,500 \times 1.5)) \\ &= \$3,000 \text{ favorable}\end{aligned}$$