Section 7: price and efficiency variance

Which of the following can be a reason for a favorable price variance for direct materials?
A) a decrease in the price of materials due to an oversupply of materials
B) an unexpected increase in the price of materials
C) less amount of material used during production than planned for actual output
D) workers taking less time to produce the products
Answer: A
2) A favorable efficiency variance for direct manufacturing labor indicates that _____.
A) a lower wage rate than planned was paid for direct labor
B) a higher wage rate than planned was paid for direct labor
C) less direct manufacturing labor-hours were used during production than planned for actual output
D) more direct manufacturing labor-hours were used during production than planned for actual output
Answer: C

3) Which of the following is the correct formula for the materials price variance?
A) (Actual price of input - Budgeted price of input) x Budgeted quantity of input
B) (Actual quantity of input used - Budgeted quantity of input allowed for actual output) x Budgeted price of input
C) (Actual price of input - Budgeted price of input) x Actual quantity of input
D) (Actual quantity of input used - Budgeted quantity of input allowed for actual output) x Actual price of input
Answer: C

4) A favorable efficiency variance for direct materials might indicate that _____.
A) lower-quality materials were purchased
B) work is scheduled efficiently
C) there is an unexpected increase in direct labor rates
D) management hired underskilled workers
Answer: B
5) A favorable price variance for direct manufacturing labor might indicate that _____.
A) employees were paid more than planned
B) unexpected increase in direct labor rates
C) underskilled employees are being hired
D) congestion due to scheduling problems
Answer: C
6) An unfavorable efficiency variance for direct manufacturing labor might indicate that _____.
A) there is unexpected increase in direct labor rates
B) work is scheduled inefficiently
C) lower-quality materials were purchased
D) more higher-skilled workers were scheduled than planned
Answer: B
7) Heavy Products, Inc. developed standard costs for direct material and direct labor. In 2017, AII estimated the following standard costs for one of their major products, the 10-gallon plastic container.

	Budgeted quantity	**Budgeted price**
Direct materials	0.80 pounds	$60 per pound
Direct labor	0.10 hours	$20 per hour

During June, Heavy Products produced and sold 15,000 containers using 25,000 pounds of direct materials at an average cost per pound of $64 and 12,000 direct manufacturing labor-hours at an average wage of $21.56 per hour.

June's direct material flexible-budget variance is _____.
A) $60,000 unfavorable
B) $100,000 favorable
C) $880,000 unfavorable
D) $18,720 favorable
Answer: C
Explanation: Flexible-budget variance = (25,000 × $64) − (15,000 × 0.80 × $60) = $880,000 U
8) Heavy Products, Inc. developed standard costs for direct material and direct labor. In 2017, AII estimated the following standard costs for one of their major products, the 10-gallon plastic container.

	Budgeted quantity	**Budgeted price**
Direct materials	0.70 pounds	$70 per pound
Direct labor	0.10 hours	$35 per hour

During June, Heavy Products produced and sold 25,000 containers using 23,000 pounds of direct materials at an average cost per pound of $75 and 17,500 direct manufacturing labor-hours at an average wage of $35.75 per hour.

The direct material price variance during June is _____.
A) $115,000 unfavorable
B) $500,000 favorable
C) $500,000 unfavorable
D) $13,125 favorable
Answer: A
Explanation: Direct material price variance = 23,000 × ($75 − $70) = $115,000 U
9) Heavy Products, Inc. developed standard costs for direct material and direct labor. In 2017, AII estimated the following standard costs for one of their major products, the 10-gallon plastic container.

	Budgeted quantity	**Budgeted price**
Direct materials	0.90 pounds	$60 per pound
Direct labor	0.10 hours	$30 per hour

During June, Heavy Products produced and sold 19,000 containers using 1,200 pounds of direct materials at an average cost per pound of $63 and 17,100 direct manufacturing labor-hours at an average wage of $31.25 per hour.

The direct manufacturing labor price variance during June is _____.
A) $21,375 unfavorable
B) $21,375 favorable
C) $3,600 unfavorable
D) $950,400 unfavorable
Answer: A
Explanation: Direct manufacturing labor price variance = 17,100 dlh × ($30 − $31.25) = $21,375 U
10) Heavy Products, Inc. developed standard costs for direct material and direct labor. In 2017, AII estimated the following standard costs for one of their major products, the 10-gallon plastic container.

	Budgeted quantity	**Budgeted price**
Direct materials	0.30 pounds	$90 per pound
Direct labor	0.25 hours	$30 per hour

During June, Heavy Products produced and sold 15,000 containers using 2,400 pounds of direct materials at an

average cost per pound of $92 and 3,750 direct manufacturing labor-hours at an average wage of $91.25 per hour.

The direct manufacturing labor efficiency variance during June is _____.
A) $85,547 unfavorable
B) $229,687.5 favorable
C) $918,750 unfavorable
D) $0
Answer: D
Explanation: Direct manufacturing labor efficiency variance = [3,750 dlh − (15,000 × 0.25)] × $30 = $0

11) Genent Industries, Inc. (GII), developed standard costs for direct material and direct labor. In 2017, GII estimated the following standard costs for one of their major products, the 30-gallon heavy-duty plastic container.

	Budgeted quantity	**Budgeted price**
Direct materials	0.30 pounds	$50 per pound
Direct labor	0.60 hours	$12 per hour

During July, GII produced and sold 4,000 containers using 1,350 pounds of direct materials at an average cost per pound of $48 and 2,450 direct manufacturing labor hours at an average wage of $12.25 per hour.

July's direct material flexible-budget variance is _____.
A) $4,800 unfavorable
B) $7,500 favorable
C) $9,900 unfavorable
D) $0
Answer: A
Explanation: Direct material flexible-budget variance = (1,350 × $48) − (4,000 × 0.30 × $50) = $4,800 U
12) Genent Industries, Inc. (GII), developed standard costs for direct material and direct labor. In 2017, GII estimated the following standard costs for one of their major products, the 30-gallon heavy-duty plastic container.

	Budgeted quantity	**Budgeted price**
Direct materials	0.40 pounds	$20 per pound
Direct labor	0.80 hours	$15 per hour

During July, GII produced and sold 4,000 containers using 1,700 pounds of direct materials at an average cost per pound of $15 and 3,225 direct manufacturing labor hours at an average wage of $15.25 per hour.

The direct material price variance during July is _____.
A) $20,000 unfavorable
B) $8,500 favorable
C) $8,500 unfavorable
D) $2,000 unfavorable
Answer: B
Explanation: Direct material price variance = 1,700 × ($20 − $15) = $8,500 F
13) Genent Industries, Inc. (GII), developed standard costs for direct material and direct labor. In 2017, GII estimated the following standard costs for one of their major products, the 30-gallon heavy-duty plastic container.

	Budgeted quantity	**Budgeted price**

Direct materials	0.20 pounds	$40 per pound
Direct labor	0.10 hours	$18 per hour

During July, GII produced and sold 4,000 containers using 1,000 pounds of direct materials at an average cost per pound of $37 and 475 direct manufacturing labor hours at an average wage of $18.75 per hour.

The direct material efficiency variance during July is _____.
A) $5,000 unfavorable
B) $7,400 favorable
C) $8,000 unfavorable
D) $5,000 favorable
Answer: C
Explanation: Direct material efficiency variance = $40 × [1,000 − (4,000 × 0.20)] = $8,000 U
14) Genent Industries, Inc. (GII), developed standard costs for direct material and direct labor. In 2017, GII estimated the following standard costs for one of their major products, the 30-gallon heavy-duty plastic container.

	Budgeted quantity	**Budgeted price**
Direct materials	0.60 pounds	$20 per pound
Direct labor	0.30 hours	$14 per hour

During July, GII produced and sold 4,000 containers using 2,700 pounds of direct materials at an average cost per pound of $19 and 1,290 direct manufacturing labor hours at an average wage of $14.30 per hour.

The direct manufacturing labor flexible-budget variance during July is _____.
A) $1,260.00 unfavorable
B) $900.00 favorable
C) $1,647.00 unfavorable
D) $3,300.00 favorable
Answer: C
Explanation: Direct manufacturing labor flexible-budget variance = (1,290 × $14.30) − (4,000 × 0.30 × $14) = $1,647.00 U
15) Genent Industries, Inc. (GII), developed standard costs for direct material and direct labor. In 2017, GII estimated the following standard costs for one of their major products, the 30-gallon heavy-duty plastic container.

	Budgeted quantity	**Budgeted price**
Direct materials	0.10 pounds	$30 per pound
Direct labor	0.30 hours	$18 per hour

During July, GII produced and sold 4,000 containers using 600 pounds of direct materials at an average cost per pound of $26 and 1,290 direct manufacturing labor hours at an average wage of $18.40 per hour.

The direct manufacturing labor price variance during July is _____.
A) $1,620.00 unfavorable
B) $516.00 favorable
C) $480.00 favorable
D) $3,600.00 unfavorable
Answer: B
Explanation: Direct manufacturing labor price variance = 1,290 dlh × ($18.40 − $18) = $516.00 F
16) Genent Industries, Inc. (GII), developed standard costs for direct material and direct labor. In 2017, GII estimated the following standard costs for one of their major products, the 30-gallon heavy-duty plastic

container.

	Budgeted quantity	Budgeted price
Direct materials	0.40 pounds	$50 per pound
Direct labor	0.50 hours	$11 per hour

During July, GII produced and sold 4,000 containers using 1,750 pounds of direct materials at an average cost per pound of $48 and 2,090 direct manufacturing labor hours at an average wage of $11.30 per hour.

The direct manufacturing labor efficiency variance during July is _____.
A) $990.00 unfavorable
B) $627.00 favorable
C) $1,617.00 favorable
D) $1,017.00 unfavorable
Answer: A
Explanation: Direct manufacturing labor efficiency variance = [2,090 dlh − (4,000 × 0.50)] × $11 = $990.00 U
17) 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.

	Budgeted quantity	Budgeted price
Direct materials	1 pounds	$5.40 per pound
Direct labor	0.50 hours	$13.00 per hour

During September, MCP produced and sold 1,000 units using 1,300 pounds of direct materials at an average cost per pound of $5.00 and 480 direct labor hours at an average wage of $13.15 per hour.

September's direct material flexible-budget variance is _____.
A) $400 unfavorable
B) $120 favorable
C) $1,100 unfavorable
D) $520 favorable
Answer: C
Explanation: Direct material flexible-budget variance = (1,300 × $5.00) − (1,000 × 1 × $5.40) = $1,100 U
18) 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.

	Budgeted quantity	Budgeted price
Direct materials	1 pounds	$8.60 per pound
Direct labor	0.20 hours	$13.00 per hour

During September, MCP produced and sold 1,000 units using 1,400 pounds of direct materials at an average cost per pound of $8.00 and 160 direct labor hours at an average wage of $13.50 per hour.

The direct material price variance during September is _____.
A) $840 favorable
B) $840 unfavorable
C) $2,600 unfavorable
D) $2,600 favorable
Answer: A
Explanation: Direct material price variance = 1,400 × ($8.00 − $8.60) = $840 F
19) 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.

	Budgeted quantity	Budgeted price
Direct materials	2 pounds	$2.30 per pound
Direct labor	0.40 hours	$15.00 per hour

During September, MCP produced and sold 1,000 units using 2,200 pounds of direct materials at an average cost per pound of $2.00 and 360 direct labor hours at an average wage of $15.15 per hour.

The direct material efficiency variance during September is _____.
A) $660 favorable
B) $660 unfavorable
C) $460 favorable
D) $460 unfavorable
Answer: D
Explanation: Direct material efficiency variance = $2.30 × [2,200 − (1,000 × 2)] = $460 U
20) 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.

	Budgeted quantity	Budgeted price
Direct materials	7 pounds	$7.30 per pound
Direct labor	0.50 hours	$10.00 per hour

During September, MCP produced and sold 2,000 units using 14,400 pounds of direct materials at an average cost per pound of $7.00 and 950 direct labor hours at an average wage of $10.40 per hour.

The direct labor flexible-budget variance during September is _____.
A) $120.00 favorable
B) $120.00 unfavorable
C) $520.00 favorable
D) $520.00 unfavorable
Answer: A
Explanation: Direct labor flexible-budget variance = (950 × $10.40) − (2,000 × 0.50 × $10.00) = $120.00 F