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## ACCY 121 Chapter 16 Practice Quiz Fundamentals of Variance Analysis

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	32,500
m.	\$106,300

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.

		(a)	(6)	(a-b)	(c)	(b-c)	VC Rate	
			18000 MH		19000 MH		MH	FC
		18000 MH	Flexible	Flex B	Master	Sales		
		Actual	Budget	Variance	Budget	Activity V		
Machine s	et-up	4,800	3.600	1,200 U	3,800	200 F	. 20	0
Lubricants	•	24,500	26,000	1,500 F	27,000	1,000 F	1.00	8,000
Utilities		12,000	12,600	600 F	13,300	700 F	.70	Ð
Indirect la	bor	32,500	30,800	1,700 U	31,400	600 F	.60	20,000
Depreciati	on	32,500	32,000	<u>500</u> U	32,000	0	0	32,000
Total costs	3	<u>106,300</u>	105,000	<u>1.300</u> U	<u>107,500</u>	<u>2,500</u> F		
			*		1			
			$\subseteq$					
Master Budget:		<b>#</b> 0. <b>0</b> 0. <b>1</b> 0.00	Variabl		$\left< \frac{\text{Total}}{2000} \right>$			
	Machin	<b>.</b>	\$0.20 x 19,00			3,800		
	Lubrica		\$1.00 x 19,00	1	,	27,000		
	Utilities		\$0.70 x 19,00	· · · ·		13,300		
	Indirect		\$0.60 x 19,00	1 · · ·		31,400		
	Depreci	ation			<u>0</u> <u>32,000</u>	32,000		
	Total			47,50	<u>0</u> <u>60,000</u>	107,500		
		e Budget:		<u>Variabl</u>		<u>Total</u>		
	Machin	-	\$0.20 x 18,00			3,600		
	Lubrica		\$1.00 x 18,00		10	26,000		
	Utilities		\$0.70 x 18,00			12,600		
	Indirect		\$0.60 x 18,00			30,800		
	Depreci	ation			<u>0 32,000</u>	32,000		
Feedback:	Total			45,00	<u>0</u> <u>60,000</u>	105,000		

AACSB: Analytic AICPA: FN-Decision Making Bloom's: Analysis Difficulty: Medium Learning Objective: 3 Topic Area: Flexible Budgeting

LO3 Diff: Medium

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:			1 martine and the second
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	8.00
Total			\$57.00

Cost Card per transformer



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

Required: Compute each of the following variances, showing all your work. Be sure to indicate whether the variances are favorable or unfavorable.

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

a. \$208 unfavorable

b. \$300 favorable

c. \$350 unfavorable

d. \$1,400 favorable

e.\$6,470 unfavorable

f. \$600 favorable

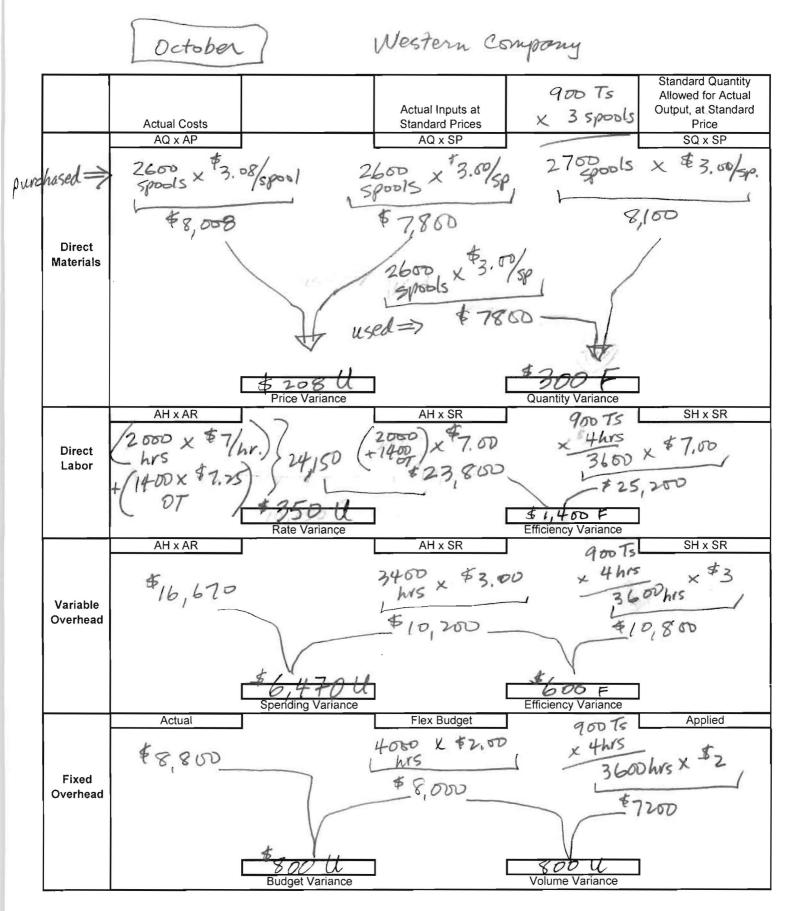
g. \$800 unfavorable

h. \$800 unfavorable

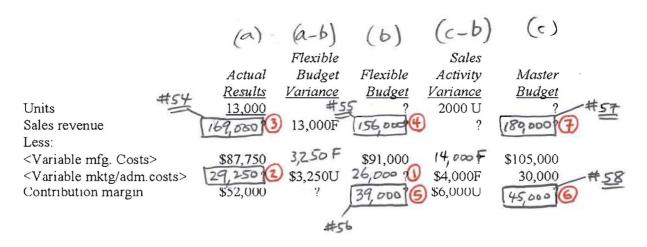
Feedback: a.  $(\$3.08 - \$3.00) \times 2,600 = \$208$  unfavorable b.  $[2,600 - (3 \times 900)] \times \$3.00 = \$300$  favorable c.  $[(\$7.00 \times 2,000) + (\$7.25 \times 1,400)] - (\$7.00 \times 3,400) = \$350$  unfavorable d.  $[3,400 - (4 \times 900)] \times \$7.00 = \$1,400$  favorable e.  $\$16,670 - (\$3.00 \times 3,400) = \$6,470$  unfavorable f.  $(\$3.00 \times 3,400) - [\$3.00 \times (4 \times 900)] = \$600$  favorable g.  $\$8,800 - (\$2.00 \times 4,000) = \$800$  unfavorable h.  $(\$2.00 \times 4,000) - [(\$2.00 \times (4 \times 900)] = \$800$  unfavorable

AACSB: Analytic AICPA: FN-Decision Making Bloom's: Analysis Difficulty: Medium Learning Objective: 5 Learning Objective: 6 Topic Area: Variable Cost Variance Analysis, Fixed Cost Variances

## Variance Analysis Template



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54. What is the actual sales revenue? A. \$156,000. B. \$169,000. C. \$180,000.

D \$404 000

D. **\$191,000.** 

First, solve for actual variable marketing & administrative costs = \$29,250; Second, add actual contribution margin to the actual variable costs to find actual sales = \$169,000

AACSB: Analytic AICPA: FN-Decision Making Bloom's: Analysis Difficulty: Hard Learning Objective: 2 Topic Area: Sales Activity Variance 55. What is the sales revenue in the flexible budget? A. \$139,000. <u>B.</u> \$156,000. C. \$169,000. D. \$180,000.

\$169,000 (actual sales from previous question) - \$13,000 = \$156,000

AACSB: Analytic AICPA: FN-Decision Making Bloom's: Analysis Difficulty: Hard Learning Objective: 2 Topic Area: Sales Activity Variance

56. What is the flexible budget contribution margin? <u>A.</u> \$39,000. B. \$45,000. C. \$52,000. D. \$58,000.

\$156,000 - \$91,000 - \$26,000 = \$39,000

AACSB: Analytic AICPA: FN-Decision Making Bloom's: Analysis Difficulty: Hard Learning Objective: 2 Topic Area: Sales Activity Variance 57. What is the master budget sales revenue?
A. \$124,000.
B. \$148,000.
C. \$156,000.
D. \$180,000.

(\$156,000/13,000) = \$12 selling price;  $$12 \times (13,000 + 2,000) = $180,000$ 

AACSB: Analytic AICPA: FN-Decision Making Bloom's: Analysis Difficulty: Hard Learning Objective: 2 Topic Area: Sales Activity Variance

58. What is the master budget contribution margin? A. \$52,000. B. \$47,500. C. \$45,000. D. \$39,000.

\$180,000 - \$105,000 - \$30,000 = \$45,000

AACSB: Analytic AICPA: FN-Decision Making Bloom's: Analysis Difficulty: Hard Learning Objective: 2 Topic Area: Sales Activity Varianc 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.

Materials Direct Labor 2 hrs. ( Factory Overhead:	-	Standard Cost <u>Per Unit</u> \$ 4.00 5.20	<i>Standard</i> <u>Monthly Costs</u> \$ 8,400 10,920		
Variable Fixed		1.80 _ <u>5.00</u> \$ <u>16.00</u>	3,780 <u>10,500</u> <u>\$33,600</u>		
Variances: Material price Material quantity Labor rate Labor efficiency	244.75 unfavorable 500.00 unfavorable 520.00 favorable 2,080.00 unfavorable		assume=	purchased	= used

69. What were the actual direct labor hours worked during the month?
<u>A.</u> 5,000.
B. 4,800.
C. 4,200.
D. 4,000.
E. 3,400.

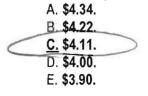
Number of units = 33,600/16.00 = 2,100; [AH -  $(2,100 \times 2)$ ] × 2.60 = 2,080 U; AH = 5,000

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 $($4.00 \times AQ) - (2,100 \times $4.00) = $500 U; AQ = 2,225$ 

AACSB: Analytic AICPA: FN-Decision Making Bloom's: Analysis Difficulty: Hard Learning Objective: 5 Topic Area: Direct Materials

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



(AP - \$4.00) 2,225 = \$244.75U; AP = \$4.11 (rounded)

AACSB: Analytic AICPA: FN-Decision Making Bloom's: Analysis Difficulty: Hard Learning Objective: 5 Topic Area: Direct Materials

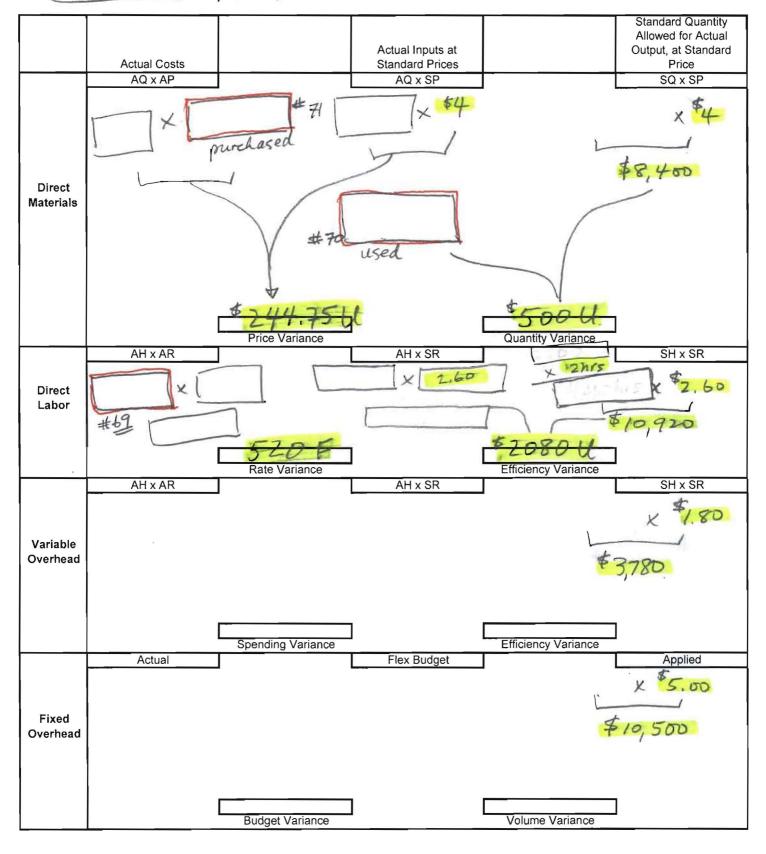
## Variance Analysis Template

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Metal Tennis Racket Frames



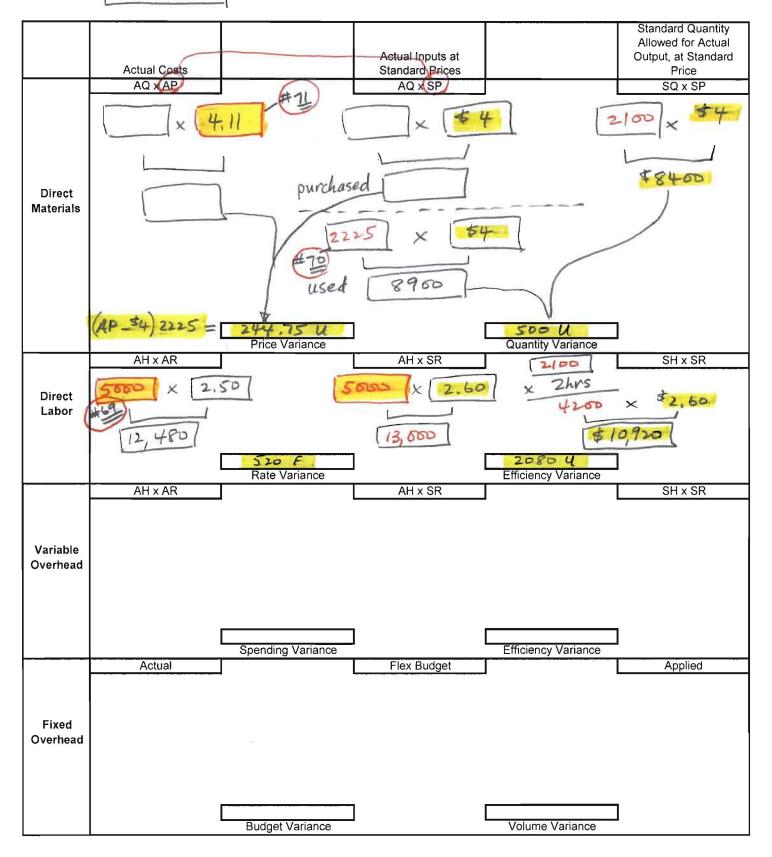
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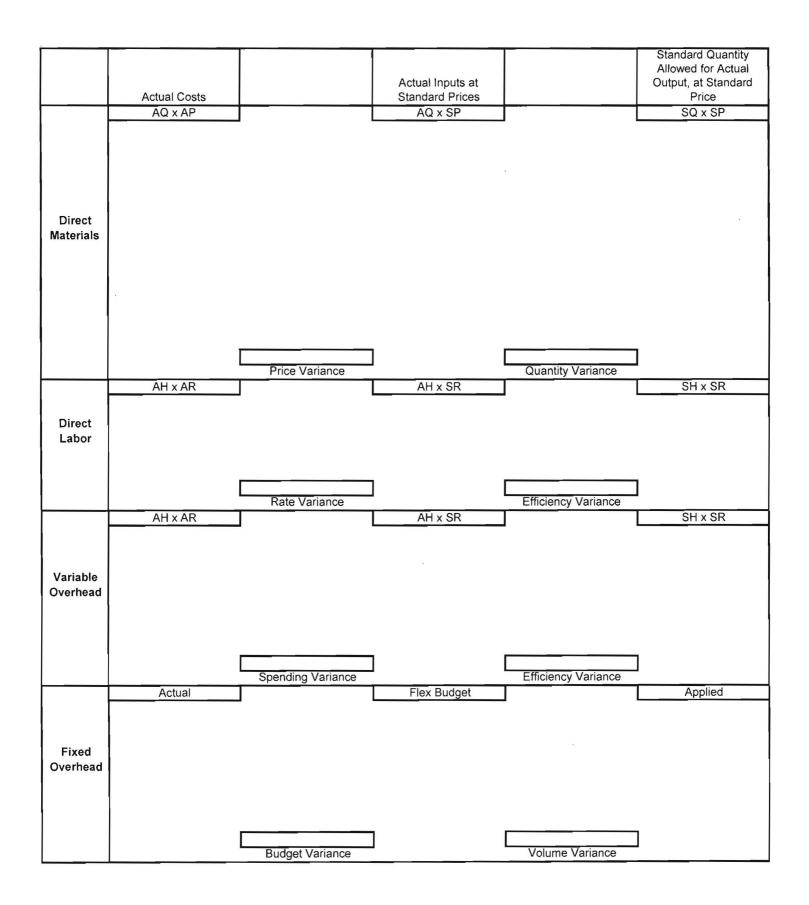


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Metal Tennis Racket Frames



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