Chapter 11
Standard Costs and Variance Analysis

QUESTIONS

1. Actual costs are compared with standard costs to evaluate performance. If investigation of differences between actual and standard costs indicates that operations are inefficient, corrective action can be taken.

2. Standard costs can be developed as follows:

Material price	Price lists provided by suppliers
Material quantity	Specified in engineering plans or recipes
Direct labor rates	Wage rates as specified in labor contracts and/or estimated by the management for different categories of workers
Direct labor quantity	Time and motion studies, and analysis of past data
Overhead rate	Estimated by dividing the amount of anticipated overhead by an estimate of the allocation base

3. Ideal standards are based on a "perfect" environment and do not include an allowance for equipment breakdown or material defects. Currently attainable cost standards are lower than ideal cost standards as they allow for current conditions including breakdowns and defects.

4. Managers trying to achieve favorable material price variance may buy material of inferior material or in quantities that are too large (i.e., they overinvest in inventory) to get lower prices.

5. A favorable material price variance may occur if lower quality material is purchased. Similarly, a favorable labor rate variance may occur if workers having less than desirable level of skills are hired at lower wage rates. Both factors are likely to cause material spoilage and waste resulting in an unfavorable material quantity variance.

6. Management should investigate all significant variances because even a favorable variance may be indicative of poor management decisions (e.g., a favorable material price variance may be related to the purchase of inferior materials).

7. Yes—if total output is less than the output expected at the time the overhead rate was determined, less fixed overhead will be applied to production compared to the budget (i.e., there will be an unfavorable overhead volume variance). This does not indicate that overhead costs are in or out of control—it simply indicates that production is less than planned.

8. Only those variances that are deemed exceptional should be investigated. The cost and likely benefits of variance investigation should be considered in this decision.

9. Management by exception means that special attention is paid to those occurrences (such as variances) which are deemed exceptional (i.e., out of the ordinary.)

10. It implies that managers should be held accountable for only those variances that they can control.

11. Variance accounts can be closed by a corresponding debit or credit to either (a) Cost of Goods Sold only, or (b) proportionately to Work in Process, Finished Goods, and Cost of Goods Sold.

EXERCISES

E1. Unless the Cutting Department reduces production to 500 units per hour, excess Work in Process Inventory will build up in front of the Chemical Bath Department. An investment in the excess Work in Process does not create shareholder value.

However, if the Cutting Department reduces production but does not reduce its work force (hoping that the bottleneck will be eliminated in the near future), it will have an unfavorable labor efficiency variance. The variance formula is (AH – SH) SR. Actual hours will not change but standard hours will be for 500 units, not 600.

E2. If the production process is improved, the standard hours for the quantity produced may be decreased (it takes less time to produce an item). Now, unless the work force is reduced or the work force has more items to work on, an unfavorable labor efficiency variance will result (actual labor hours will be greater than standard hours).

E3. a. According to the Web site, "Simply put, production variances in SAP are warning flags that one or more of your standard costs are not right, 'right' being defined as equal to actual costs."

b. "The question to ask whenever dollars appear in the Price Variance account is: Should I adjust my standard cost to be more in line with reality, or is this a one-time event that will not repeat itself?"

E4. **Material Price Variance**

= (AP - SP) AQ^P
= ($26 - $25) 100
= $100 unfavorable

Actual price = $2,600 ÷ 100 = $26

Material Quantity Variance

= (AQ^U - SQ) SP
= (83 - 80) $25
= $75 unfavorable

Standard quantity = 40 × 2 = 80

E5. **Labor Rate Variance**

= (AR - SR) AH
= ($26 - $25) 820
= $820 unfavorable

Actual wage rate = $21,320 ÷ 820 = $26

Labor Efficiency Variance

= (AH - SH) SR
= (820 - 800) $25
= $500 unfavorable

Standard hours = 40 × 20 = 800

E6. a. Standard overhead rate per unit = Estimated overhead ÷ Estimated production
= [$599,760 + ($600 × 504)] ÷ 504
= $1,790 per unit

b. **Controllable Overhead Variance**
= Actual overhead - Flexible budget level of overhead for actual production
= $76,000 - [$49,980 + (40 × $600)]
= $76,000 - $73,980
= $2,020 unfavorable

c. **Overhead Volume Variance**
= Flexible budget level of overhead for actual production - Overhead applied to production
= [$49,980 + (40 × $600)] - ($1,790 × 40)
= $73,980 - $71,600
= $2,380 unfavorable

E7. **Material Price Variance**

= (AP - SP) AQ^P
= ($300 - $295) 663
= $3,315 unfavorable

Actual quantity purchased = $198,900 ÷ $300 = 663 ounces

Material Quantity Variance

= (AQ^U - SQ) SP
= (663 - 650) $295
= $3,835 unfavorable

Standard quantity = 1,300 × .5 ounces = 650 ounces

E8. **Material Price Variance**

= (AP - SP) AQ^P
= ($1,900 - $2,000) 110
= ($11,000) favorable

Actual price = $209,000 ÷ 110 = $1,900 per valve

Material Quantity Variance

= (AQ^U - SQ) SP
= (105 - 100) $2,000
= $10,000 unfavorable

Standard quantity = 25 × 4 valves = 100 valves

E9. **Labor Rate Variance**

= (AR - SR) AH
= ($18.20 - $18) 9,500
= $1,900 unfavorable

Actual wage rate = $172,900 ÷ 9,500 hours = $18.20 per hour

Labor Efficiency Variance

= (AH - SH) SR
= (9,500 - 10,000) $18
= ($9,000) favorable

Standard hours = 20,000 × .5 hours per pair = 10,000 hours

E10. **Material Price Variance**

= (AP - SP) AQ^P
= ($8 - $9) 10,000
= ($10,000) favorable

Actual price = $80,000 ÷ 10,000 yards = $8.00 per yard

Material Quantity Variance

= (AQ^U - SQ) SP
= (11,000 - 10,500) $9
= $4,500 unfavorable

Standard quantity = 7,000 × 1.5 yards = 10,500 yards

Labor Rate Variance

= (AR - SR) AH
= ($15.50 - $15) 3,800
= $1,900 unfavorable

Actual wage rate = $58,900 ÷ 3,800 hours = $15.50 per hour

Labor Efficiency Variance

= (AH - SH) SR
= (3,800 - 3,500) $15
= $4,500 unfavorable

Standard hours = 7,000 × .5 hours per pair = 3,500 hours

E11. **Controllable Overhead Variance**

= Actual overhead - Flexible budget level of overhead for actual production
= $91,000 - [$80,000 + ($1.20 × 5,000)]
= $91,000 - $86,000
= $5,000 unfavorable

E12. **Labor Rate Variance**

= (AR - SR) AH
= ($12.75 - $12.30) 52,000
= $23,400 unfavorable

Labor Efficiency Variance

= (AH - SH) SR
= (52,000 - 48,750) $12.30
= $39,975 unfavorable

Standard hours = 32,500 × 1.5 hours per pair = 48,750 hours

Controllable Overhead Variance

= Actual overhead - Flexible budget level of overhead for actual production
= $326,800 - [$135,000 + ($6 × 32,500)]
= $326,800 - $330,000
= ($3,200) favorable

Overhead Volume Variance

= Flexible budget level of overhead for actual production - Overhead applied to production
= [$135,000 + ($6 × 32,500)] - ($10.50 × 32,500)
= $330,000 - $341,250
= ($11,250) favorable

Standard overhead rate per unit = Estimated overhead ÷ Estimated production
= [$135,000 + ($6 × 30,000)] ÷ 30,000
= $10.50 per unit

E13.

Variance	Amount	Percent of Actual Production Cost
Material price variance	$ (2,349)	0.16%
Material quantity variance	(10,468)	0.70
Labor rate variance	1,452	0.10
Labor efficiency variance	(4,682)	0.31
Controllable overhead variance	(1,000)	0.07
Overhead volume variance	(99,960)	6.67

The overhead volume variance does not need to be investigated. There is an obvious explanation—the company produced only 420 units instead of the planned 504 units.

The only other variance that exceeds 1/2 percent is the material quantity variance, which should be investigated.

E14. **Material Price Variance**

= (AP - SP) AQ^P
= ($24 - $25) 70,000
= ($70,000) favorable

Actual price = $1,680,000 ÷ 70,000 linear feet = $24 per foot

Material Quantity Variance

= (AQ^U - SQ) SP
= (65,000 - 66,000) $25
= ($25,000) favorable

Standard quantity = 2,200 × 30 feet = 66,000 feet

Journal Entries

Raw Material Inventory	1,750,000	
Material Price Variance		70,000
Accounts Payable		1,680,000

(To record material purchases)

Work-in Process Inventory	1,650,000	
Material Quantity Variance		25,000
Raw Material Inventory		1,625,000

(To record material used in production)

E15. **Labor Rate Variance**

= (AR - SR) AH
= ($11.75 - $11.90) 9,328
= ($1,399.20) favorable

Labor Efficiency Variance

= (AH - SH) SR
= (9,328 - 9,400) $11.90
= ($856.80) favorable

Journal Entry

Work in Process	111,860.00	
Labor Rate Variance		1,399.20
Labor Efficiency Variance		856.80
Wages Payable		109,604.00

(To record labor cost)

E16.			
	Manufacturing Overhead	381,000	
	Various accounts		381,000
	(To record actual overhead incurred)		
	Work-in Process Inventory	405,000	
	Manufacturing Overhead		405,000
	(To record overhead applied at $2.25 per unit)		

The total overhead variance is the difference between overhead applied to production and actual overhead ($405,000 - $381,000 = $24,000). One third of the total variance relates to the volume variance and two thirds relates to the controllable overhead variance.

Manufacturing Overhead	24,000	
Overhead Volume Variance		8,000
Controllable Overhead Variance		16,000
(To close manufacturing overhead and record overhead variances)		

E17.			
	Cost of Goods Sold	8,585	
	Material Price Variance	4,150	
	Labor Rate Variance	115	
	Material Quantity Variance		3,250
	Labor Efficiency Variance		2,600
	Controllable Overhead Variance		2,500
	Overhead Volume Variance		4,500
	(To close variances to cost of goods sold)		

E18.			
	Finished Goods	$100,000.00	20%
	Work in Process	50,000.00	10%
	Cost of Goods Sold	350,000.00	70%
	Total	$500,000.00	100%

Apportionment of Variances

Finished Goods	$1,717.00	20%
Work in Process	858.50	10%
Cost of Goods Sold	6,009.50	70%
Total	$8,585.00	100%

Finished Goods	1,717.00	
Work in Process	858.50	
Cost of Goods Sold	6,009.50	
Material Price Variance	4,150.00	
Labor Rate Variance	115.00	
Material Quantity Variance		3,250.00
Labor Efficiency Variance		2,600.00
Controllable Overhead Variance		2,500.00
Overhead Volume Variance		4,500.00

(To close variances to finished goods, work in process, and cost of goods sold)

PROBLEMS

P1. a. **Material Price Variance**

= (AP - SP) AQ^P

= ($8.50 - $8) 15,900

= $7,950 unfavorable

Actual price = $135,150 ÷ 15,900 pounds = $8.50 per pound

Material Quantity Variance

= (AQ^U - SQ) SP

= (16,800 - 16,200) $8

= $4,800 unfavorable

Standard quantity = 324,000 × .8 ounce ÷ 16 ounces = 16,200 pounds

b. The paid per pound was 6.25% higher than the standard price ($8.50 compared to $8.0). It may be that the standard price reflects an estimate of the annual average price and seasonal fluctuations are expected.

Coffee used was approximately 4% more than standard. This should be investigated for possible causes (e.g., pilferage, waste, or use of more coffee per cup than the company's recipe requires).

P2. a. Standard Cost per unit:

Material (0.5 gallon × $6.50)	$ 3.25
Labor (1.5 hours × $9.00)	13.50
Variable overhead	8.50
Fixed overhead	2.00
Total unit cost	$27.25

b. **Material Price Variance**

= (AP - SP) AQ^P
= ($6.60 - $6.50) 10,000
= $1,000 unfavorable

Actual price = $66,000 ÷ 10,000 gallons = $6.60 per gallon

Material Quantity Variance

= (AQ^U - SQ) SP
= (9,100 - 8,750) $6.50
= $2,275 unfavorable

Standard quantity = 17,500 × .5 gallons = 8,750 gallons

Labor Rate Variance

= (AR - SR) AH
= ($9.05 - $9) 25,375
= $1,268.75 unfavorable

Actual hours = $229,643.75 ÷ $9.05 per hour = 25,375 hours

Labor Efficiency Variance

= (AH - SH) SR
= (25,375 - 26,250) $9
= ($7,875) favorable

Standard hours = 17,500 cans × 1.5 hours per can = 26,250 hours

Controllable Overhead Variance

= Actual overhead - Flexible budget level of overhead for actual production
= $169,750 - [$30,000 + ($8.50 × 17,500)]
= $169,750 - $178,750
= ($9,000) favorable

Overhead Volume Variance

= Flexible budget level of overhead for actual production - Overhead applied to production
= [$30,000 + ($8.50 × 17,500)] - ($10.50 × 17,500)
= $178,750 - $183,750
= ($5,000) favorable

c. **Possible Causes of Variances**

Unfavorable Material Price Variance: Market prices of materials were higher than expected. Or, possibly, the company increased the quality of materials and paid a higher price (but standards were not revised).

Unfavorable Material Quantity Variance: More material was used because of unskilled labor, mishandling, accidents or processing defects.

Unfavorable Rate Variance: Additional workers were hired at a higher rate than current workers. Or, possibly, a new labor contract was signed and standards were not revised.

Favorable Labor Efficiency Variance: The company engaged in a process improvement initiative, which improved the productivity of labor.

Favorable Controllable Overhead Variance: Better control over overhead expenses.

Favorable Overhead Volume Variance: Production volume was greater than expected so more overhead was applied than budgeted.

P3. a. Standard overhead rate per unit
= (Budgeted fixed overhead per unit + standard variable overhead per unit)
= ($90,000 ÷ 20,000 units) + 5.40
= $9.90

b. **Material Price Variance**
= (AP - SP) AQ^P
= ($2.20 - $2.25) 44,000
= ($2,200) favorable

Actual price = $96,800 ÷ 44,000 pounds = $2.20 per gallon

Material Quantity Variance
= (AQ^U - SQ) SP
= (46,200 - 44,000) $2.25
= $4,950 unfavorable

Standard quantity = 22,000 × 2 pounds = 44,000 gallons

Labor Rate Variance
= (AR - SR) AH
= ($11 - $10) 10,300
= $10,300 unfavorable

Actual wage rate = $113,300 ÷ 10,300 hours = $11 per hour

Labor Efficiency Variance

= (AH - SH) SR
= (10,300 - 11,000) $10
= ($7,000) favorable

Standard hours = 22,000 units × .5 hours per unit = 11,000 hours

Controllable Overhead Variance

= Actual overhead - Flexible budget level of overhead for actual production
= $208,000 - [$90,000 + ($5.40 × 22,000)]
= $208,000 - $208,800
= ($800) favorable

Overhead Volume Variance

= Flexible budget level of overhead for actual production - Overhead applied to production
= $90,000 + ($5.40 × 22,000)] - ($9.90 × 22,000)
= $208,800 - $217,800
= ($9,000) favorable

c. **Variance Summary**

Material price variance	($2,200) favorable
Material quantity variance	4,950 unfavorable
Labor rate variance	10,300 unfavorable
Labor efficiency variance	(7,000) favorable
Controllable overhead variance	(800) favorable
Overhead volume variance	(9,000) favorable
Total	($3,750) favorable

Both the unfavorable labor rate variance and the favorable labor efficiency variance should be investigated because they are both relatively large. Although the overhead volume variance is relatively large, its cause is obvious (more units were produced than planned).

P4. **Material Price Variance (Material A)**

= (AP - SP) AQ^P
= ($.19 - $.20) 24,500
= ($245) favorable

Actual price = $4,655 ÷ 24,500 pounds = $.19 per pound

Material Price Variance (Material B)

= (AP - SP) AQ^P
= ($.41 - $.40) 5,900
= $59 unfavorable

Actual price = $2,419 ÷ 5,900 pounds = $.41 per pound

Material Quantity Variance (Material A)

= (AQ^U - SQ) SP
= (24,500 - 24,000) $.20
= $100 unfavorable

Standard quantity = 30 batches × 800 pounds per batch = 24,000 pounds

Material Quantity Variance (Material B)

= (AQ^U - SQ) SP
= (5,900 - 6,000) $.40
= ($40) favorable

Standard quantity = 30 batches × 200 pounds = 6,000 gallons

Labor Rate Variance

= (AR - SR) AH
= ($16 - $15) 300
= $300 unfavorable

Actual wage rate = $4,800 ÷ 300 hours = $16 per hour

Labor Efficiency Variance

= (AH - SH) SR
= (300 - 240) $15
= $900 unfavorable

Standard hours = 30 batches units × 8 hours per batch = 240 hours

Controllable Overhead Variance

= Actual overhead - Flexible budget level of overhead for actual production
= $15,500 - $16,000
= ($500) favorable

Overhead Volume Variance

= Flexible budget level of overhead for actual production - Overhead applied to production
= $16,000 - ($400 x 30 batches)
= $16,000 - $12,000
= $4,000 unfavorable

b. **Variance Summary**

Material price variance (A)	$ (245) favorable
Material price variance (B)	59 unfavorable
Material quantity variance (A)	100 unfavorable
Material quantity variance (B)	(40) favorable
Labor rate variance	300 unfavorable
Labor efficiency variance	900 unfavorable
Controllable overhead variance	(500) favorable
Overhead volume variance	4,000 unfavorable
Total	$4,574 unfavorable

The overhead volume variance does not suggest that overhead costs are out of control. It simply indicates that production was less than the level used in setting the overhead rate.

P5. a. Standard cost per unit

Material (3.5 pounds × $3.40 per pound)	$11.90
Labor (0.5 hours × $20 per pound)	10.00
Variable overhead	6.00
Fixed overhead	1.00
Total	$28.90

Material Price Variance

= (AP - SP) AQ^P
= ($3.60 - $3.40) 350,000
= $70,000 unfavorable

Actual price = $1,260,000 ÷ 350,000 pounds = $3.60 per pound

Material Quantity Variance

= (AQ^U - SQ) SP
= (341,550 - 346,500) $3.40
= ($16,830) favorable

Standard quantity = 99,000 seals × 3.5 pounds per seal = 346,500 pounds

Labor Rate Variance

= (AR - SR) AH
= ($21 - $20) 49,500
= $49,500 unfavorable

Actual hours = $1,039,500 ÷ $21 per hour = 49,500 hours

Labor Efficiency Variance

= (AH - SH) SR
= (49,500 - 49,500) $20
= 0

Standard hours = 99,000 seals × .5 hours per seal = 49,500 hours

Controllable Overhead Variance

= Actual overhead - Flexible budget level of overhead for actual production
= $650,000 - [$100,000 + ($6 × 99,000)]
= $650,000 - $694,000
= ($44,000) favorable

Overhead Volume Variance

= Flexible budget level of overhead for actual production - Overhead applied to production
= [$100,000 + ($6 × 99,000)] - ($7 × 99,000)
= $694,000 - $693,000
= $1,000 unfavorable

b. **Variance Summary**

Material price variance	$70,000 unfavorable
Material quantity variance	(16,830) favorable
Labor rate variance	49,500 unfavorable
Labor efficiency variance	0
Controllable overhead variance	(44,000) favorable
Overhead volume variance	1,000 unfavorable
Total	$59,670 unfavorable

The overhead volume variance (which occurred because actual production was less than planned) and the labor efficiency variance (which was zero) do not need to be investigated. The remaining variances appear to warrant investigation.

P6. **Labor Rate Variance**

= (AR - SR) AH
= ($32.5467 - $25) 322
= $2,430.04 unfavorable

Actual rate = $10,480 ÷ 322 hours = $32.5467 per hour

Labor Efficiency Variance

= (AH - SH) SR
= (322 - 302.4167) $25
= $489.58 unfavorable

Standard hours = 1,910 samples × 9.5 minutes per sample ÷ 60 minutes = 302.4167 hours

Although the labor rate variance is relatively large, its cause is fairly obvious. It is not surprising that the company would need to pay a relatively high wage rate to a temporary worker with the skills to draw and prepare blood samples. As only 322 hours of work were performed in the month, it appears that the lab had only two full-time employees. Based on $40 per hour for one of them and $25 per hour for the other, and assuming that each worked an equal number of hours, the expected total cost at an average rate of $32.50 [($40 + 25) ÷2] is $10,465. With this in mind, the actual cost of $10,480 does not seem to be out of line.

P7. a. Will should not act according to his initial instinct—the causes of the variances should be determined before managers are rewarded/punished.

b. The favorable material price variance could be due to purchasing inferior materials at a price less than standard. This could lead to material waste, which would show up in an unfavorable material quantity variance. It could also lead to an unfavorable labor efficiency variance if workers need to spend more time (than standard) to produce defect free units.

c. Will should investigate the causes for variances before determining rewards or punishments.

P8. a. No. Fewer customer calls and less time per call could result from bad as well as good performance.

b. Favorable variance could occur because of good performance if:
(1) Software quality improved so that customers did not need to call customer support as often, and if they did call, problems were simpler and could be solved in less time.

(2) Customer support quality improved so that customers did not need to call repeatedly for the same problem. And, when customers called, questions were answered correctly and quickly.

Favorable variance could occur because of bad performance if:
(1) Software quality deteriorated resulting in much lower sales and, consequently, fewer customers called (although the remaining customers made frequent calls).

(2) Customer support quality deteriorated as employees tried to cut-off customer calls in order to reduce the "time per call" measure, and the customers were so dissatisfied that they were discouraged from calling.

The scenario is more likely if the software magazine review is reliable.

P9. a. The favorable material price variance is due to the purchase of inferior materials at a bargain price. This could lead to an unfavorable material quantity variance if extra material needed to be used because of material defects and the need to rework defective products.

The favorable labor rate variance is due to use of temporary replacement workers who are paid lower wage rates. But the use of replacement workers will lead to an unfavorable labor efficiency variance if the replacement workers are not able to produce items as efficiently as permanent workers.

b. I would not characterize as a good decision the decision to purchase materials at a bargain price. The materials are inferior and may compromise product quality, the reputation of the company, and shareholder value.

P10. Due to the strike, 500,000 Road Guardian batteries were not produced and sold. How did this affect profit? The batteries sell for $30 per unit and the variable cost (assuming that overhead is essentially fixed due to the high level of investment in automation) is $5 ($3 of material and $2 of labor). Thus the contribution margin is $25. The effect of not producing and selling 500,000 Road Guardians is $12,500,000 ($25 x 500,000).

The controller recognizes that the strike reduced productive capacity. However, he measures the cost of reduced capacity in terms of the difference between the amount of overhead in the flexible budget (which equals the amount in a static budget because all overhead is fixed) and the amount applied to inventory (a difference of $5,000,000). This difference is the overhead volume variance. It indicates that $5,000,000 of overhead was not applied to production, but that is not a reasonable measure of the effect of the strike. Overhead is essentially fixed and overhead was actually less than budgeted (by a relatively small amount). The effect of reduced capacity on profit needs to be assessed in terms of the lost contribution margin related to reduced capacity. As we saw above, the effect of the strike was reduced production of the Road Guardian by 500,000 units. Since the Road Guardian has a contribution margin of $25, the impact of the strike was $12,500,000.

P11. a. **Material Price Variance**

= (AP - SP) AQ^P

= ($41 - $40) 16,000

= $16,000 unfavorable

Raw Material Inventory	640,000	
Material Price Variance	16,000	
Accounts Payable		656,000

(To record the purchase of raw material)

b. **Material Quantity Variance**

= (AQ^U - SQ) SP

= (15,800 - 15,300) $40

= $20,000 unfavorable

Work in Process	612,000	
Material Quantity Variance	20,000	
Raw Material Inventory		632,000

(To record the use of raw material)

c. **Labor Rate Variance**

= (AR - SR) AH
= ($21 - $20) 25,100
= $25,100 unfavorable

Labor Efficiency Variance

= (AH - SH) SR
= (25,100 - 25,500) $20
= ($8,000) favorable

Work in Process	510,000	
Labor Rate Variance	25,100	
Labor Efficiency Variance		8,000
Wages Payable		527,100

(To record direct labor)

d. **Controllable Overhead Variance**

= Actual overhead - Flexible budget level of overhead for actual production
= $50,200 - [$30,000 + ($4 × 5,100)]
= $50,200 - $50,400
= ($200) favorable

Overhead Volume Variance

= Flexible budget level of overhead for actual production - Overhead applied to production
= [$30,000 + ($4 × 5,100)] - ($10 × 5,100)
= $50,400 - $51,000
= ($600) favorable

Work in Process	51,000	
Manufacturing Overhead		51,000

(To record overhead applied to production)

Manufacturing Overhead	50,200	
Various Accounts		50,200

(To record actual overhead)

Manufacturing Overhead	800	
Controllable Overhead Variance		200
Overhead Volume Variance		600

(To close Manufacturing Overhead and record overhead variances)

e. Cost of Goods Sold	52,300	
Labor Efficiency Variance	8,000	
Controllable Overhead Variance	200	
Overhead Volume Variance	600	
Material Price Variance		16,000
Material Quantity Variance		20,000
Labor Rate Variance		25,100

(To close variance accounts to Cost of Goods Sold)