2005 – 2006

ACY1112 Suggested Solution

Problem 1

(1)

	Dello Co.		Miraclesoft Co.	
Unit selling price		$90		$90
Less: Variable expenses				
Direct materials	$10		$5	
Direct labor	20		10	
Variable manufacturing overheads	5		5	
Sales commission	5		2	
Variable administrative expense	10		8	
Total variable cost		50		30
Contribution Margin per unit		$40		$60

(2)

	Dello Co.	Miraclesoft Co.
Fixed manufacturing overheads	$10,000	$32,000
Fixed sales commission	5,000	4,000
Fixed administrative expense	5,000	6,000
Total fixed costs	$20,000	$42,000

Breakeven in unit

Dello Co.:

$20,000 ÷ $40 = 500 units

Miraclesoft Co.:

$42,000 ÷ $60 = 700 units

(3a)

Degree of operating leverage (DOL) -

Dello Co. at sales level of 600 units:

$$\frac{600 \times 40}{600 \times 40 - 20{,}000}$$

= 6

Miraclesoft Co. at sales level of 400 units:

$$\frac{400 \times 60}{400 \times 60 - 42{,}000}$$

= -1.33

The operating leverage of Dello Co. is 6. It implies one dollar increase in sales generates 6 times increase in net operating income.

The operating leverage of Miraclesoft Co. is –1.33. It implies at sales level of 400 units, sales are not able to cover the fixed costs.

(3b)

Firms have the greatest incentive to increase selling quantities at breakeven sales level. So, Dello Co. and Miraclesoft Co. have highest incentive at 500 units and 700 units respectively.

(4)

No. of units sold in year 2003:

(Fixed Expenses + Profit) ÷ CM per unit

= (20,000 + 20,000) ÷ 40 = 1,000 units

(5)

We cannot calculate the breakeven sales of Parent Co. To calculate the breakeven sales, we have to know the sales mix of Dello Co. and Miraclesoft Co.'s products.

(6)
CM ratio of Dello Co.: 40 ÷ 90 = 0.44
CM ratio of Miraclesoft Co.: 60 ÷ 90 = 0.66

Dello Co. has a lower CM ratio that implies a cost structure with higher proportion of variable expenses. Profit increase less rapidly as sales increase. Miraclesoft Co. has a higher CM ratio. It implies a cost structure with high proportion of fixed expenses.

In a good economic situation, sales are steady and high. Miraclesoft Co. has a higher CM ratio, so higher sales will result in higher net operating income. Miraclesoft Co. should be kept while Dello Co. should be dropped.

During recession, Sales drop. Miraclesoft Co. has high proportion of fixed costs. Drop in sales level will cause difficulties in covering fixed costs for Miraclesoft Co. Therefore, Miraclesoft Co. should be dropped in case of recession.

Problem 2
(1)
Unit product cost under absorption costing:

	Year 1	Year 2
Variable Manufacturing Cost	$10	$10
Fixed Manufacturing Cost	20*	30*
Unit Product Cost	30	40

*Unit fixed manufacturing cost in year 1: $600,000 ÷ 30,000 units = $20
Unit fixed manufacturing cost in year 2: $600,000 ÷ 20,000 units = $30

(2)

Wonderful Inc.

Income Statement

	Year 1		Year 2	
Sales		$800,000		$1,000,000
Variable Expenses				
Variable Cost of Goods Sold				
Beginning Inventory	$0		$100,000	
Cost of Goods Manufactured (@$10)	300,000		200,000	
Goods available for sales	300,000		300,000	
Less: Ending Inventory	100,000		50,000	
	200,000		250,000	
Variable selling and administrative costs (@$3)	60,000	260,000	75,000	325,000
Contribution Margin		540,000		675,000
Fixed Expenses				
Fixed manufacturing costs	600,000		600,000	
Fixed selling and administrative costs	50,000		50,000	
Total fixed expenses		650,000		650,000
Net Operating Income (Loss)		($110,000)		$25,000

(3)

Reconciliation of net operating income under variable costing and absorption costing:

Net operating income under variable costing	($110,000)	$25,000
Add: Fixed manufacturing costs deferred in inventory	200,000	150000
Less: Fixed manufacturing cost released from inventory		200,000
Net operating income under absorption costing	90,000	(25,000)

(4)

Under absorption costing, fixed manufacturing costs are absorbed in ending inventory and carried forward to next year. Though sales of year 2 have increased when comparing to year 2, there is ending inventory in year 2 than year 1. So, the fixed manufacturing costs released is greater than fixed manufacturing costs absorbed. As sales are not able to cover fixed manufacturing costs released and other fixed costs, net operating loss is resulted.

Problem 3

(1)

Actual cost per unit of product A:

Standard Cost	
Direct materials	$10,080
Direct Labor	6,300
Variable manufacturing overheads	2,520
Total standard cost	$18,900
No. of units	1,000
Standard cost per unit	$18.9
Difference between standard and actual cost	(0.09)
Actual cost per unit	$18.81

(2)

Total standard quantity of direct materials = $10,080 ÷ $6 = 1,680 units

Standard quantity of direct materials per unit = 1,680 ÷ 1,000 = 1.68 units

(3)

Materials quantity variance	=	SP x (AQ – SQ)
1200	=	$6 x (AQ - $10,080 ÷ $6)
1200	=	$6 x (AQ – 1,680)
AQ	=	1,880

Actual price per unit of materials = $9,400 ÷ 1,880 = $5

(4)

Materials price variance	=	AQ x (SP – AP)
	=	1,880 x ($6 - $5)
	=	$1,880

Material price variance is $1,880(F)

(5)

Standard Variable Manufacturing Overhead	=	SR x SH
$2520	=	$3 x SH
SH	=	840 DLH

Labor rate variance	=	(AH x AR)* - (AH x SR)
	=	$7250 – [950 x ($6300/840)]
	=	$7250 – (950 x $7.5)
	=	$125

Labour rate variance is $125 (U)

* Total direct labour rate = $18.81 x 1000 - $9,400 - $2,160 = $7,250

(6)

Labour efficiency variance	=	SR x (AH – SH)
	=	$7.5 x (950 - 840)
	=	$825

*Labour efficiency variance is $825(U)

(7)The difference between the actual and standard labour hour is the reason why there is a $825 unfavorable labour efficiency variance. The possible reasons that may contribute to a increase in labour hour maybe because of the staff haven’t had enough training in using the machines, or the materials being used were inferior due to a lower-than-expected price.

Problem 4

(1)

Incremental Revenue		$720,000
Additional costs:		
Direct materials (@$110)	$165,000	
Direct Labor (@$100)	150,000	
Variable Manufacturing Overheads (@$80)	120,000	
Variable Shipping and handling	138,000	
Total additional costs		573,000
Increase in net operating income		147,000

If the special offer is accepted, Great China Company will have $147,000 increase in net operating income. Therefore, the offer should be accepted.

(2)

Incremental Revenue (2,500 x $480)		$1,200,000
Additional costs:		
Direct materials (@$110)	($275,000)	
Direct Labor (@$100)	(250,000)	
Variable Manufacturing Overheads (@$80)	(200,000)	
Variable Shipping and handling	(145,000)	($870,000)
Lost of sales revenue (12,000 x 8% x $580)		(556,800)
Variable costs saved:		
Direct materials	$105,600	
Direct Labor	96,000	
Variable manufacturing overhead	76,800	
Variable Shipping and handling	55,680	
Sales Commission	21,120	$355,200
Increase in net operating income		$128,400

Since there in $128,400 increase in net operating income after the offer is accepted, Great China should accept WongMart's order.

(3)

	Differential Cost	
	Make	Buy
Manufacturing Costs:		
Direct Materials	60,000	
Direct Labor	84,000	
Variable Manufacturing Overheads	36,000	
Purchase Costs		288,000
Opportunity Cost - Rental revenue	100,000	
Total Cost	280,000	288,000

If the company chooses to manufacture speakers, $288,000 - $280,000 = $8,000 of costs will be saved. So, Great China should not purchase speakers from the outside supplier and continue to make them internally.