2007-2008

ACY2121 Suggested Solutions

Problem 1

	$
Sales revenue	12.5
Less: Variable expenses	
Variable manufacturing costs	(6.25)
Variable marketing costs	(1.8)
Contribution margin of normal sales (per unit)	4.45

	$
Sales revenue	8
Less: Variable expenses	
Variable manufacturing costs	(6.25)
Variable marketing costs	(1.35)
Contribution margin of special order (per unit)	0.4

	$
Normal contribution margin lost ($4.45 x 2000)	(8900)
Contribution margin gained ($0.4 x 10000)	4000
Net loss from the special order	(4900)

Problem 2

(a)

Cumulative average time of first lot of eight units

= 3200 direct labour hours / 8 units

= 400 direct labour hours/unit

Cumulative average time of second lot of eight units

= (3200+2240) direct labour hours / 16 units

= 340 direct labour hours/unit

Learning rate

= 340 direct labour hours/400 direct labour hours x 100%

= 85%

(b)

The cumulative average time of the 17-32 units

= (Total cumulative average time for 32 units – Time for 1st lot of 8 units – Time for 2nd lot of 8 units)/16

= (400 direct labour hours x 32 x 0.85^2 - 3200 direct labour hours – 2240 direct labour hours)/16

= 238 direct labour hours

(c)

Since there will be no significant improvement in production after the first 32 units, standard for direct labour hours is 400 direct labour hours x 32 x 0.85^2 = 238 direct labour hours.

Standard costs:	$
Direct materials ($30 x 50)	1,500
Direct labour ($25 x 289)	7,225
Variable manufacturing overhead ($40 x 289)	11,560
Variable manufacturing costs per unit	20,285

The price Kelly should bid on this order

= $20,285 x 96 x 1.3

= $2,531,568

Problem 3

Cashflow Schedule:

	0	1	2	3	4	5
Investment flow	$	$	$	$	$	$
Equipment cost	(300,000)					
Installation cost	(18,000)					
Proceeds of asset sold	5,000					
Tax loss on gain of disposal	(2,000)					
Periodic operating flows, net of tax		54,000	90,000	90,000	90,000	90,000
Depreciation tax shield		24,000	48,000	16,000	16,000	16,000
Cashflow	(315,000)	78,000	138,000	106,000	106,000	106,000
PV factor (@12%)	1	0.8929	0.7972	0.7118	0.6355	0.5674
	(315,000)	69,646.2	110,013.6	75,450.8	67,363	60,144.4
NPV	67,618					

Problem 4

(a)

Direct Materials:

Actual		Flexible Budget
AP x AQ	SP x AQ	SP x SI/O x AO
$5.2 x 25,000	$5 x 25,000	
= 130,000	= $125,000	
	$5 x 23,100	$5 x 1.5 x 15,600
	= $115,500	= $117,000

Direct materials price variance = $5,000 U

Direct materials efficiency variance = $1,500 F

(b)

Direct Labour:

Actual		Flexible Budget
AP x AQ	SP x AQ	SP x SI/O x AO
$14.6 x 40,100	$15 x 40,100	$15 x 2.5 x 15,600
= $585,460	= $601,500	= $585,000

Direct labour rate variance = $16,040 F

Direct labour efficiency variance = $16,500 U

(c)

Overhead:

	Actual costs incurred	SP x AQ	Flexible Budget (Budgeted input allowed for actual output x budgeted rate)	Allocated
Variable	?	$6 x 40,100	$6 x 2.5 x 15,600	
		= $240,600	= $234,000	
Fixed	?			$8 x 2.5 x 15,600
		$320,000	$320,000	= $312,000

Variable overhead efficiency variance = $6,600 U

Fixed overhead production volume variance = $8,000 U

(d)

Total manufacturing overhead spending variance = $320,000 + $240,600 - $592,600

= $32,000 U

Problem 5

(a)

Total sales volume variance:

Residential - $100 x (260,000 – 248,400) = $1,160,000 U

Office - $80 x (140,000 – 165,600) = $2,048,000 F

Total - $888,000 F

(b)

Residential chair budget sales mix = 260,000/ (260,000+140,000) = 0.65

Office chair budget sales mix = 140,000/ (260,000+140,000) = 0.35

Residential chair actual sales mix = 248,400/414,000 = 0.6

Office chair actual sales mix = 165,600/414,000 = 0.4

Residential chair sales mix variance = $100 x (0.65-0.6) x 414,000 = $2,070,000 U

Residential chair sales quantity variance = $100 x 0.65 x (414,000-400,000) = $910,000 F

Office chair sales mix variance = $80 x (0.35-0.4) x 414,000 = $1,656,000 F

Office chair sales quantity variance = $80 x 0.35 (414,000-400,000) = $392,000 F

Total sales mix variance = $414,000 U

Total sales quantity variance = $1,302,000 F

(c)

Budgeted average contribution margin per unit - $37,200,000/400,000 = $93

Budgeted market share – 400,000/2,400,000 = 0.1667

Actual market share – 414,000/2,200,000 = 0.1882

Market share variance = $93 x (0.1882-0.1667) x 2,200,000 = $4,402,000 F

Market size variance = $93 x 0.1667 x (2,400,000-2,200,000) = $3,100,000 U

Problem 6

Finishing Department

Physical flow:	
Beginning WIP	4,000
Goods started in the year	16,000
Total goods to account for	20,000
Goods completed	18,000
Ending WIP	2,000

Total goods accounted for	20,000

Equivalents units:	Total	Transfer-In	Conversion Cost
Goods completed	18,000	18,000	18,000
Ending WIP	2,000	2,000	600
Work done to date	20,000	20,000	18,600
Beginning WIP	$13,600	$8,800	$4,800
Cost added	$83,600	$51,200	$32,400
Total cost	$97,200	$60,000	$37,200
Unit cost	$5	$3	$2

Production cost worksheet:	$	$
Goods completed		90,000
Ending inventory		
Transfer-In	6,000	
Conversion cost	1,200	7,200
Total cost accounted for		97,200

END