Solutions Chapter 12

Exercise 12.1
a. Total budgeted labor expenses = 40,000*$15 + 60,000*$10 = $1,200,000.
Charge = $2,400,000/$1,200,000 = 200%.

	X	*Y*
Materials	$6	$12
Labor	$15	$10
Overhead charge	2*$15	2*$10
Cost per unit	**$51**	**$42**

b. Total budgeted materials expenses = 40,000*$6 + 60,000*$12 = $960,000.
Charge = $2,400,000/$960,000 = 250%.

	X	*Y*
Materials	$6	$12
Labor	$15	$10
Overhead charge	2.5*$6	2.5*$12
Cost per unit	**$36**	**$52**

c. Total budgeted machine hours = 40,000*10 + 60,000*20 = 1,600,000.
Charge = $2,400,000/1,600,000 = $1.5 per machine hour.

	X	*Y*
Materials	$6	$12
Labor	$15	$10
Overhead charge	10*$1.50	20*$1.50
Cost per unit	**$36**	**$52**

d.

Charge on materials	$1,152,000/ $960,000 = 120%
Charge on labor	$900,000/$1,200,000 = 75%
Charge on machine hour	$348,000/1,600,000 = $0.2175 per hour.

	X	Y
Materials	$6	$12
Labor	$15	$10
Charge on materials	1.2*$6 = $7.2	1.2*12 = $14.40
Charge on labor	0.75*$15 = $11.25	0.75*$10 = $7.50
Charge on machine time	10*$0.2175 = $2.175	20*$0.2175 = $4.35
Cost per unit	**$41.625**	**$48.25**

Exercise 12.2
a. Direct costs at normal production:
Materials: $40,000/0.8 = $50,000.
Labor: $60,000/0.8 = $75,000.

Machine hours at normal production: 12,800/0.8 = 16,000.

Overhead expenses at normal production:
Indirect materials: $8,000/0.8 + $20,000 = $30,000.
Indirect labor: $8,000/0.8 + $ 8,000 = $18,000.
Indirect machine: $16,000/0.8 + $20,000 = $40,000.

Charge on materials	$30,000/ $50,000 = 60%
Charge on labor	$18,000/$75,000 = 24%
Charge on machine hour	$40,000/16,000 = $2.50 per hour.

b.

Materials	$100
Labor	$250
Charge on materials	0.6*$100 = $60
Charge on labor	0.24*$250 = $60
Charge on machine time	5*$2.50 = $12.50
Cost per unit	**$482.50**

Exercise 12.3
a. Total material cost: 10,000*$10 + 5,000*$12 = $160,000.
Rate = $300,000/$160,000 = 187.5%.

	A	*B*
Materials	$10	$12
Labor	$6	$3
Overhead charge	1.875*$10	1.875*$12
Cost per unit	**$34.75**	**$37.5**

b. Product A has a positive contribution margin so should be maintained.
c.
Contr.margin: 11,500(30-16)+ 4,750(45-15) = $303,500
Fix. costs: $300,000
Profit: $ 3,500

Since there is no inventory change, profit for AC and DC must be the same.
d. A different allocation base leads to a different standard cost per unit. This will not lead to a difference in profit in the situation described under c since the inventory does not change.

Exercise 12.4
a. ($)

	A	*B*	*C*	*D*
Overhead	25,000	10,000	30,000	20,000
Housing	719.42	2,697.84	12,589.93	8,992.81
Administration	3.043.48	3,652.17	9,130.43	12,173.91
	28,762.90			
A		4,314.44	5,752.58	18,695.88
		20,664.45		
B			16,531.56	4,132.89
			74,004.51	63,995.49
Rate per hour			**3.70**	**4.27**

b.

Material	$240
Labor C	$15
Labor D	$35
Machine C	$14.8
Machine D	$34.16
Cost	$338.96
Sales price	$440.65

Exercise 12.5
a. Total direct labor = $785,000.
Rate = $976,500/$785,000 = 1.24 per direct labor dollar.

	B	*S*	*P*
Direct cost	$18	$26	$35
Charge	$12.44	$14.93	$18.66
	$30.44	**$40.93**	**$53.66**

b. Total runs = 94. Cost per run = $564,000/94 = $6,000.
Total boxes = 16,500. Cost per box = $412,500/16,500 = $25.

	B	*S*	*P*
Direct cost	$18	$26	$35
Machine	$7.2	$6	$16
S&H	$5	$6.25	$8.33
	$30.2	**$38.25**	**$59.33**