Solutions Manual for Managerial Accounting Tools for Business Decision Making 6th Edition by Weygandt

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CHAPTER 3

Process Costing

ASSIGNMENT CLASSIFICATION TABLE

			Brief			Α	В
Learı	ning Objectives	Questions	Exercises	Do It!	Exercises	Problems	Problems
1.	Understand who uses process cost systems.	1, 2, 20		1	1		
2.	Explain the similarities and differences between job order cost and process cost systems.	2, 3, 4, 5		1	1		
3.	Explain the flow of costs in a process cost system.	6			3	1A	1B
4.	Make the journal entries to assign manufacturing costs in a process cost system.	6, 7	1, 2, 3	2	2, 4	1A	1B
5.	Compute equivalent units.	10, 11, 12, 13	4, 9	3	3, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15	2A, 3A, 4A, 5A, 6A	2B, 3B, 4B, 5B, 6B
6.	Explain the four steps necessary to prepare a production cost report.	8, 9, 14, 15, 18	5, 6, 7, 8	4	3, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19	2A, 3A, 4A, 5A	2B, 3B, 4B, 5B
7.	Prepare a production cost report.	16, 17, 19	11	4	7, 12, 13	2A, 3A, 4A, 5A, 6A	2B, 3B, 4B, 5B, 6B
*8.	Compute equivalent units using the FIFO method.	21, 22	10, 11, 12		16, 17, 18, 19, 20	7A	7B

*Note: All asterisked Questions, Exercises, and Problems relate to material contained in the appendix to the chapter.

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ASSIGNMENT CHARACTERISTICS TABLE

Problem Number	Description	Difficulty Level	Time Allotted (min.)
1A	Journalize transactions.	Moderate	20–30
2A	Complete four steps necessary to prepare a production cost report.	Simple	30–40
3A	Complete four steps necessary to prepare a production cost report.	Simple	30–40
4A	Assign costs and prepare production cost report.	Moderate	20–30
5A	Determine equivalent units and unit costs and assign costs.	Moderate	20–30
6A	Compute equivalent units and complete production cost report.	Moderate	15–25
*7A	Determine equivalent units and unit costs and assign costs for processes; prepare production cost report.	Moderate	30–40
1B	Journalize transactions.	Moderate	20–30
2B	Complete four steps necessary to prepare a production cost report.	Simple	30–40
3B	Complete four steps necessary to prepare a production cost report.	Simple	30–40
4B	Assign costs and prepare production cost report.	Moderate	20–30
5B	Determine equivalent units and unit costs and assign costs.	Moderate	20–30
6B	Compute equivalent units and complete production cost report.	Moderate	15–25
*7B	Determine equivalent units and unit costs and assign costs for processes; prepare production cost report.	Moderate	30–40

				-			•		
Learning Objective	Knowledge	Compr	ehension		Application	ı	Analysis	Synthesis	Evaluation
1. Understand who uses process cost	Q3-1	E3-1	DI3-1						
systems.	Q3-2	Q3-20							
2. Explain the similarities and difference	s Q3-2	Q3-4	DI3-1						
between job order cost and process	Q3-3	Q3-5							
cost systems.		E3-1							
3. Explain the flow of costs in a process	Q3-6			E3-3		P3-1B	P3-1A		
cost system.				P3-1A			P3-1B		
4. Make the journal entries to assign	Q3-6			Q3-7	BE3-3	E3-4	P3-1A		
manufacturing costs in a process				BE3-1	DI3-2	P3-1A	P3-1B		
cost system.				BE3-2	E3-2	P3-1B			
5. Compute equivalent units.	Q3-10			Q3-12	E3-9	P3-5A	P3-2A		
	Q3-11			Q3-13	E3-10	P3-6A	P3-3A		
				BE3-4	E3-11	P3-2B	P3-2B		
				BE3-9	E3-13	P3-3B	P3-3B		
				DI3-3	E3-14	P3-4B			
				E3-3	E3-15	P3-5B			
				E3-5	P3-2A	P3-6B			
				E3-6	P3-3A				
				E3-7	P3-4A				
				E3-8					
6. Explain the four steps necessary	Q3-8	Q3-9		Q3-14	E3-7	E3-18	P3-2A		
to prepare a production cost report.				Q3-15	E3-8	E3-19	P3-3A		
				Q3-18	E3-9	P3-2A	P3-2B		
				BE3-5	E3-10	P3-3A	P3-3B		
				BE3-6	E3-11	P3-4A			
				BE3-7	E3-13	P3-5A			
				BE3-8	E3-14	P3-2B			
				DI3-4	E3-15	P3-3B			
				E3-3	E3-16	P3-4B			
				E3-5	E3-17	P3-5B			
				E3-6					
7. Prepare a production cost report.	Q3-16			BE3-11	P3-2A	P3-2B			
	Q3-17			DI3-4	P3-3A	P3-3B			
	Q3-19			E3-7	P3-4A	P3-4B			
				E3-11	P3-5A	P3-5B			
				E3-13	P3-6A	P3-6B			
*8. Compute equivalent units using the				Q3-21	BE3-12	E3-19			
FIFO method.		1		Q3-22	E3-16	E3-20			
		1		BE3-10	E3-17	P3-7A			
		1		BE3-11	E3-18	P3-7B			
Broadening Your Perspective		BYP3-4	L .	BYP3-1			BYP3-2	BYP3-5	BYP3-6
							BYP3-3		
							BYP3-7		

Correlation Chart between Bloom's Taxonomy, Learning Objectives and End-of-Chapter Exercises and Problems

BLOOM'S TAXONOMY TABLE

ANSWERS TO QUESTIONS

- **1.** (a) Process cost.
 - (b) Process cost.
 - (c) Job order.
 - (d) Job order.
- 2. The primary focus of job order cost accounting is on the individual job. In process cost accounting, the primary focus is on the processes involved in producing homogeneous products.
- **3.** The similarities are: (1) all three manufacturing cost elements—direct materials, direct labor, and overhead—are the same; (2) the accumulation of the costs of materials, labor, and overhead is the same; and (3) the flow of costs is the same.
- **4.** The features of process cost accounting are: (1) separate work in process accounts for each process, (2) production cost reports, (3) product costs computed for each accounting period, and (4) unit costs computed based on total manufacturing costs.
- **5.** Sam is correct. The flow of costs is the same in process cost accounting as in job order cost accounting. The method of assigning costs, however, is significantly different.
- **6.** (a) (1) Materials are charged to production on the basis of materials requisition slips.
 - (2) Labor is usually charged to production on the basis of the payroll register or departmental payroll summaries.
 - (b) The criterion used in assigning overhead to processes is to identify the activity that "drives" or causes the cost. In many companies this activity is machine time, not direct labor.
- 7. The entry to assign overhead to production is:

July 31	Work in Process—Machining	15,000	
-	Work in Process—Assembly	12,000	
	Manufacturing Overhead		27,000

- To prepare a production cost report, four steps are followed: (a) compute the physical unit flow, (b) compute equivalent units of production, (c) compute unit production costs, and (d) prepare a cost reconciliation schedule.
- **9.** Physical units to be accounted for consist of units in process at the beginning of the period plus units started (or transferred) into production during the period. Units accounted for consist of units completed and transferred out during the period plus units in process at the end of the period.
- **10.** Equivalent units of production measure the work done during the period, expressed in fully completed units.
- **11.** Equivalent units of production are the sum of: (1) units completed and transferred out and (2) equivalent units of ending work in process.
- **12.** Units started into production were 9,600, or (9,000 + 600).

13.		Equ	ivalent Units
		Materials	Conversion Costs
Units transferred out		12,000	12,000
Work in process			
500 X 100%		500	
500 X 20%			<u> 100 </u>
Total equivalent units		<u>12,500</u>	<u>12,100</u>
14. Units transferred out wer Units to be accoun Work in proce Started into p Total uni	e 3,200* ted for ss (beginning) roduction ts	500 <u>3,000</u> <u>3,500</u>	
Units accounted for Completed ar Work in proce Total uni *3,500 – 300	nd transferred out ess (ending) ts	3,200* <u>300</u> <u>3,500</u>	

- **15.** (a) The cost of the units transferred out is \$112,000, or (14,000 X \$8).
 - (b) The cost of the units in ending inventory is \$8,500, or [(2,000 X \$3) + (500 X \$5)].
- **16.** (a) Ann is incorrect. The report is an internal report for management.
 - (b) There are four sections in a production cost report: (1) number of physical units, (2) equivalent units determination, (3) unit costs, and (4) cost reconciliation schedule.
- **17.** The production cost report provides the basis for evaluating: (1) the productivity of a department, (2) whether unit and total costs are reasonable, and (3) whether current performance is meeting planned objectives.
- **18.** The per unit conversion cost is \$11.25. [Conversion costs = \$6,000 \$2,400 = \$3,600. Equivalent units for conversion costs are 320 (800 X 40%); \$3,600 ÷ 320 = \$11.25.]
- **19.** Operations costing is similar to process costing in that standardized methods are used to manufacture the product. At the same time, the product may have some customized individual features that require the use of a job order cost system.
- **20.** In deciding which system to use, a cost-benefit tradeoff occurs. In a job order system, detailed information related to the cost of the product is involved. The cost of implementing this system is often expensive. In a process cost system, an average cost of the product will suffice and therefore the cost to implement is less. In summary, the cost of implementing the system must be balanced against the benefits provided from the additional information.
- ***21.** Units transferred out were 2,800 (2,000 + 800).
- *22. (a) The cost of the units transferred out is \$120,000 (12,000 X \$10).
 - (b) The cost of the units in ending inventory is \$9,500 [(2,000 X \$3) + (500 X \$7)].

SOLUTIONS TO BRIEF EXERCISES

BRIEF EXERCISE 3-1

Mar. 3	31	Raw Materials Inventory Accounts Payable	45,000	45,000
3	31	Factory Labor Wages Payable	60,000	60,000
BRIE	F EX	ERCISE 3-2		
Mar. 3	31	Work in Process—Assembly Department Work in Process—Finishing Department Raw Materials Inventory	24,000 21,000	45,000
3	31	Work in Process—Assembly Department Work in Process—Finishing Department Factory Labor	35,000 25,000	60,000
BRIE	F EX	ERCISE 3-3		
Mar. 3	31	Work in Process—Assembly Department		

(\$35,000 X 200%)	
Work in Process—Finishing Department	
(\$25,000 X 200%)	
Manufacturing Overhead	120,000

BRIEF EXERCISE 3-4

	Materials	Conversion Costs
January	45,000 (35,000 + 10,000)	39,000 (35,000 + 4,000 ^a)
March	48,000 (40,000 + 8,000)	46,000 (40,000 + 6,000 ^b)
July	61,000 (45,000 + 16,000)	49,000 (45,000 + 4,000°)
o 10	000 V 400/	

- a. 10,000 X 40%
- b. 8,000 X 75%
- c. 16,000 X 25%

BRIEF EXERCISE 3-5

Total materials		Equivalent units		Unit materials
costs	÷	of materials	=	cost
\$36,000		10,000		\$3.60
Total conversion		Equivalent units		Unit conversion
costs	÷	of conversion costs	=	cost
\$54,000		12,000		\$4.50
Unit materials		Unit conversion		Total manufacturing
cost	+	cost	=	cost per unit
\$3.60		\$4.50		\$8.10

BRIEF EXERCISE 3-6

Assignment of Costs	Equivalent Units	Unit Cost		
Transferred out				
Transferred out	40,000	\$11		\$440,000
<u>Work in process, 4/30</u>				
Materials	5,000	\$4	\$20,000	
Conversion costs Total costs	2,000	\$7	14,000	<u>34,000</u> \$474,000

BRIEF EXERCISE 3-7

Total materials		Equivalent units	Unit materials	
costs ÷		of materials	cost	
\$16,000		20,000	\$.80	
Total conversion costs* \$47,500	÷	Equivalent units of conversion costs 19,000	=	Unit conversion cost \$2.50

*\$29,500 + \$18,000

BRIEF EXERCISE 3-8

Costs accounted for			
Transferred out	(18,000 X \$3.30)		\$59,400
Work in process			
Materials	(2,000 X \$.80)	\$1,600	
Conversion costs	(1,000* X \$2.50)	2,500	4,100
Total costs			<u>\$63,500</u>

*2,000 X 50%

BRIEF EXERCISE 3-9

	(a)	(b)
	Materials	Conversion Costs
Units transferred out	8,000	8,000
Work in process, November 30		
Materials (7,000 X 100%)	7,000	
Conversion costs (7,000 X 40%)	·	2,800
Total equivalent units	<u>15,000</u>	<u>10,800</u>

***BRIEF EXERCISE 3-10**

Costs to Be Assigned	Assignment of Costs	Equivalent Units	Unit Cost		Total Costs Assigned
	Transferred out				
	Work in process, 3/1	0	\$ 0		\$0
	Started and completed	30,000	\$18		<u>540,000</u> 540.000
\$594,000					,
·	<u>Work in process, 3/31</u>				
	Materials	5,000	\$6	\$ 30,000	
	Conversion costs	2,000	\$12	24,000	<u>54,000</u> <u>\$594,000</u>

	Equivaler	nt Units
	Materials	Conversion Costs
Units accounted for		
Completed and transferred out		
Work in process, March 1	-0-	-0-
Started and completed	30,000	30,000
Work in process, March 31	5,000	2,000
Total units	35,000	32,000

SANDERSON COMPANY (Partial) Production Cost Report For the Month Ended March 31

COSTS

		Conversion		
	Materials	Costs	To	tal
Unit costs				
Total costs (a)	<u>\$210,000</u> *	<u>\$384,000</u> **	<u>\$594</u>	,000
Equivalent units (b)	35,000	32,000		
Unit costs (a) ÷ (b)	<u>\$6</u>	<u>\$ 12</u>	<u>\$</u>	18
Costs to be accounted for				
In process, March 1			\$	0
Costs in March			<u>594</u>	,000,
Total costs			<u>\$594</u>	,000
Costs accounted for				
Transferred out				
In process, March 1			\$	0
Started and completed				
(30,000 units X \$18)			540	,000,
In process, March 31				
Materials (5,000 X \$6)		\$ 30,000		
Conversion costs				
(2,000 X \$12)		24,000	54	,000
Total costs			<u>\$59</u> 4	,000

*35,000 equivalent units X \$6 per unit **32,000 equivalent units X \$12 per unit

*BRIEF EXERCISE 3-12

Total materials costs ÷ \$75,000 ¹		Equivalent units of materials 20,000		Unit materials cost \$3.75
¹ \$8,000 + \$67,000 =	= \$75,	000		
Total conversion		Equivalent units		Unit conversion
costs \$38,000²	÷	of conversion costs 19,000	=	cost \$2.00

²\$20,000 + \$18,000

SOLUTIONS FOR DO IT! REVIEW EXERCISES

DO IT! 3-1

- 1. False
- 2. False
- 3. True
- 4. False

DO IT! 3-2

Work in Process—Mixing	10,000 28 000	
Raw Materials Inventory	20,000	38,000
Work in Process—Mixing Work in Process—Packaging Factory Labor (To assign factory labor to production)	8,000 36,000	44,000
Work in Process—Mixing Work in Process—Packaging Manufacturing Overhead (To assign overhead to production)	12,000 54,000	66,000

DO IT! 3-2 (Continued)

Work in Process—Packaging Work in Process—Mixing (To record transfer of units to the Packaging Department)	21,000	21,000
Finished Goods Inventory Work in Process—Packaging	106,000	106,000

(To record transfer of units to finished goods)

DO IT! 3-3

(a) Since materials are entered at the beginning of the process, the equivalent units of ending work in process are 12,000.

20,000 units + 12,000 units = 32,000 equivalent units of production for materials.

(b) Since ending work in process is only 70% complete as to conversion costs, the equivalent units of ending work in process for conversion costs are 8,400 (70% X 12,000 units).

20,000 units + 8,400 units = 28,400 equivalent units of production for conversion costs.

DO IT! 3-4

- (a) 0 (Work in process, March 1) + 26,000* (Started into production) = 26,000
 *22,000 + 4,000
- (b) Equivalent units of production:

	<u>Materials</u>	<u>Conversion</u>
Units transferred out	22,000	22,000
Work in process, March 31	4,000	<u>1,600</u> (4,000 X 40%)
Total	<u>26,000</u>	<u>23,600</u>

DO IT! 3-4 (Continued)

(C)	Cost reconciliation schedule		
• •	Costs accounted for		
	Transferred out (22,000 X \$18)		\$396,000
	Work in process, March 31		
	Materials (4,000 X \$10)	\$40,000	
	Conversion costs (1,600 X \$8)	12,800	52,800
	Total costs		\$448,800

SOLUTIONS TO EXERCISES

EXERCISE 3-1

- 1. True.
- 2. True.
- 3. False. Companies that produce soft drinks and computer chips would use process cost accounting.
- 4. False. In a job order cost system, costs are tracked by individual jobs.
- 5. False. Job order costing and process costing track *the same three* manufacturing cost elements.
- 6. True.
- 7. True.
- 8. False. In a process cost system, *multiple* work in process accounts *are* used.
- 9. False. In a process cost system, costs are summarized in a production cost report for each department.
- 10. True.

April 30	Work in Process—Cooking Work in Process—Canning	21,000 9,000	
	Raw Materials Inventory		30,000
30	Work in Process—Cooking	8,500	
	Work in Process—Canning Factory Labor	7,000	15,500
30	Work in Process—Cooking	31,500	
	Work in Process—Canning	25,800	
	Manufacturing Overhead	·	57,300
30	Work in Process—Canning	53,000	
	Work in Process—Cooking		53,000

(a)	Work in process, May 1 Started into production Total units to be accounted for Less: Transferred out Work in process, May 31	400 <u>1,400</u> 1,800 <u>1,500</u> <u>300</u>	
(b) a	and (c)	Equiva	alent Units
		Materials	Conversion Costs
	Units transferred out Work in process. May 31	1,500	1,500
	300 X 100%	300	
	300 X 40%	<u>1,800</u>	<u> 120</u> <u>1,620</u>
		Direct	
	-	Materials	Conversion Costs
	Work in process, May 1	\$2,040	\$1,550
	Costs added	<u>5,160</u>	4,120*
	Total costs	<u>\$7,200</u>	<u>\$5,670</u>
	Equivalent units	<u>1,800</u> \$4.00	<u>1,620</u> \$3,50
		<u> </u>	<u><u><u></u><u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u></u>
	*\$2,740 + \$1,380		
(d)	Transferred out (1,500 X \$7.50)	\$11,250	
(e)	Work in process Materials (300 X \$4.00) Conversion costs (120 X \$3.50)	\$ 1,200) <u>420</u> \$ 1,620	

Raw Materials Inventory	62,500	CO 500
Accounts Payable		62,300
Factory Labor	60,000	
Wages Payable		60,000
Manufacturing Overhead	70,000	
Cash		40,000
Accounts Payable		30,000
Work in Process—Cutting	15,700	
Work in Process—Assembly	8,900	
Raw Materials Inventory		24,600
Work in Process—Cutting	33,000	
Work in Process—Assembly	27,000	
Factory Labor		60,000
Work in Process—Cutting (1,680 X \$18)	30,240	
Work in Process—Assembly (1,720 X \$18)	30,960	
Manufacturing Overhead		61,200
Work in Process—Assembly	67,600	
Work in Process—Cutting		67,600
Finished Goods Inventory	134,900	
Work in Process—Assembly		134,900
Cost of Goods Sold	150,000	
Finished Goods Inventory		150,000
Accounts Receivable	200,000	
Sales Revenue		200,000
	Raw Materials Inventory	Raw Materials Inventory62,500Accounts Payable60,000Wages Payable60,000Wages Payable70,000Cash70,000Cash70,000Accounts Payable15,700Work in Process—Cutting15,700Work in Process—Cutting33,000Raw Materials Inventory27,000Factory Labor27,000Factory Labor30,240Work in Process—Cutting (1,680 X \$18)30,240Work in Process—Cutting (1,720 X \$18)30,960Manufacturing Overhead67,600Work in Process—Assembly67,600Work in Process—Assembly134,900Work in Process—Assembly150,000Finished Goods Inventory134,900Work in Process—Assembly200,000Sales Revenue200,000

(a)		January	Мау
	Units to be accounted for		
	Beginning work in process	0	0
	Started into production	<u>11,000</u>	<u>23,000</u>
	Total units	<u>11,000</u>	<u>23,000</u>
	Units accounted for		
	Transferred out	9,000	16,000
	Ending work in process	2,000	7,000
	Total units	<u>11,000</u>	<u>23,000</u>

(b)	(1) <u>Materials</u>	(2) <u>Conversion Costs</u>
January	11,000(9,000+2,000)	10,200(9,000 + 1,200)
March	15,000 (12,000 + 3,000)	12,900 (12,000 + 900)
Мау	23,000 (16,000 + 7,000)	21,600 (16,000 + 5,600)
July	11,500 (10,000 + 1,500)	10,600 (10,000 + 600)

EXERCISE 3-6

(a)		(1) Materials	(2) <u>Conversion Costs</u>
	Units transferred out	12,000	12,000
	Work in process, July 31	·	·
	3,000 X 100%	3,000	
	3,000 X 60%		<u>1,800</u>
	Total equivalent units	<u>15,000</u>	<u>13,800</u>
(b)	Materials: \$45,000 ÷ 15,000 = \$3.00		
. ,	Conversion costs: (\$16,200 + \$18,300)	÷ 13,800 = \$2.50	
	Costs accounted for		
	Transferred out (12,000 X \$5.50)		\$66,000
	Work in process, July 31		
	Materials (3,000 X \$3.00)	\$9,000	
	Conversion costs (1,800 X \$2.5	0) <u>4,500</u>	<u>13,500</u>

\$79,500

Total costs

RICHARDS FURNITURE COMPANY Sanding Department Production Cost Report For the Month Ended March 31, 2014

		Equiva	lent Units	_
Quantities	Physical Units	Materials	Conversior Costs	۱ _
Units to be accounted for Work in process, March 1 Started into production Total units	0 <u>12,000</u> <u>12,000</u>			
Units accounted for Transferred out Work in process, March 31 Total units	9,000 <u>3,000</u> <u>12,000</u>	9,000 <u>3,000</u> <u>12,000</u>	9,000 <u>600</u> <u>9,600</u>	(3,000 X 20%)
Costs		Materials	Conversior <u>Costs</u>	Total
Unit costs Total cost Equivalent units Unit costs (a) ÷ (b)		<u>\$33,000</u> <u>12,000</u> <u>\$2.75</u>	<u>\$60,000</u> * <u>9,600</u> <u>\$6.25</u>	<u>\$93,000</u> <u>\$9.00</u>
Costs to be accounted for Work in process, March 1 Started into production Total costs				\$0 <u>93,000</u> <u>\$93,000</u>
Cost Reconciliation Schedule				
Costs accounted for Transferred out (9,000 X \$9.00) Work in process, March 31 Materials (3,000 X \$2.75)			\$8,250	\$81,000
Conversion costs (600 X \$6.25) Total costs			3,750	<u>12,000</u> <u>\$93,000</u>

*\$24,000 + \$36,000

(a)		(1)	(2)	
		Materials	Conversion	
	Units transferred out	17,000	17,000	
	Work in process, April 30 1,000 X 100%	1,000		
	1,000 X 40%	<u>18,000</u>	<u>400</u> <u>17,400</u>	
(b)			Conversion	
		Materials	Costs	
	Total cost	<u>\$900,000</u> (1) 18,000	<u>\$435,000</u> ⁽²⁾	\$1,335,000
	Unit costs	<u> </u>	<u> </u>	<u>\$75</u>
	⁽¹⁾ \$100,000 + \$800,000			
	⁽²⁾ \$ 70,000 + \$365,000			
(c)	Transferred out (17,000 X \$ Work in process	\$75)		\$1,275,000
	Materials (1,000 X \$50))))	\$50,000	~~ ~~~
	Total costs (40	U X \$25)	10,000	<u>60,000</u> <u>\$1,335,000</u>
EXE	ERCISE 3-9			
(a)	Materials: 34,000* + 6,000	= <u>40,000</u>		
	Conversion costs: 34,000*	* + (6,000 X 40%	%) = <u>36,400</u>	
	*40,000 – 6,000			
(b)	Materials: \$72,000/40,000 -	= <u>\$1.80</u>		
	Conversion costs: (\$81,00	0 + \$101,000)/3	86,400 = <u>\$5.00</u>	
(c)	Transferred out: 34,000 X Ending work in process:	\$6.80 = <u>\$231,2(</u>	<u>)0</u>	
	Materials (6,000 X \$1.	80)	= \$10,800	
	Conversion costs (2,4 Total	400 X \$5.00)	= <u>12,000</u> <u>\$22,800</u>	

(a)		Physical			
		Units		Equivalen	it Units
	Beginning work in process	20,000			
	Units started into production	164,000			
	-	184,000		Conversi	on
			<u>Materials</u>	<u>Costs</u>	
	Units transferred out	160,000	160,000	160,000	
	Ending work in process	24,000	24,000	14,400	(60% X 24,000)
	-	<u>184,000</u>	<u>184,000</u>	<u>174,400</u>	
(b)			Conv	ersion	
		Materials	Co	<u>osts</u>	<u>Total</u>
	Costs incurred	<u>\$101,200</u>	<u>\$34</u>	<u>8,800</u>	<u>\$450,000</u>
	Equivalent units	<u>184,000</u>	<u>17</u>	<u>4,400</u>	
	Unit costs	<u>\$0.55</u>		<u>\$2.00</u>	<u>\$2.55</u>
(c)	Assignment of costs:				
(-)	Transferred out (160.000 X	(\$2.55)			\$408.000
	Ending work in process	,			<i>+ · · · · · · · · · · · · · · · · · · ·</i>
	Materials (24.000 X \$.55)		\$1	3.200	
	Conversion costs (14.40	0 X \$2.00)	2	8.800	42.000
	Total costs			<u>-,</u>	\$450.000
					<u> + + • • • • • • • • • • •</u>

(a)		Physical Units
	Work in process, September 1	1,600
	Units started into production	<u>38,400</u>
		40,000
	Units transferred out	35,000
	Work in process, September 30	<u>5,000</u>
		40.000

EXERCISE 3-11 (Continued)

		Equivalent Units				
		Materials	Conversion Costs			
	Units transferred out Work in process	35,000	35,000			
	5,000 X 100% 5,000 X 10%	5,000	500			
		<u>40,000</u>	<u>35,500</u>			
(b)	Work in process September 1	<u>Materials</u>				
	Direct materials	\$ 20,000				
	Costs added to production					
	during September	177,200				
	Total materials cost	<u>\$197,200</u>				
	\$197,200 ÷ 40,000 = \$4.93 (Materials cost per unit)					
		Conversion (<u>Costs</u>			
	Work in process, September 1 Conversion costs	\$ 43,180)			
	Costs added to production during September					
	Conversion costs					
	(\$125,680 + \$257,140)	<u>382,820</u>	<u>)</u>			
	lotal conversion costs	<u>\$426,000</u>	<u>)</u>			
	\$426,000 ÷ 35,500 = \$12.00 (Conversi	on cost per ui	nit)			
(c)	Costs accounted for					
	Transferred out (35,000 X \$16.93) Work in process, September 30		\$592,550			
	Materials (5,000 X \$4.93)	\$2	4,650			
	Conversion costs (500 X \$12.00) Total costs	-	6,000 <u>30,650</u> <u>\$623,200</u>			

To: David Skaros

From: Student

Re: Ending inventory

The reason for any confusion related to your department's ending inventory quantity stems from the fact that the quantity can be measured in two different ways, depending on what the information is used for.

The ending inventory quantity can be measured in physical units or equivalent units. Physical units are actual units present without regard to the stage of completion. Your department's ending inventory in physical units is at least double the amount reported as equivalent units.

Equivalent units measure the work done on the physical units, expressed in terms of fully completed units. Therefore, if your ending inventory contains 4,000 units which are 50% complete, that is equivalent to having 2,000 completed units at month end. Therefore, the ending inventory could be expressed as containing 4,000 physical units or 2,000 equivalent units.

I hope this clears up any misunderstandings. Please contact me if you have any further questions.

THORPE COMPANY Welding Department Production Cost Report For the Month Ended February 28, 2014

		Equivalent Units		_
Quantities	Physical Units	Materials	Conversion Costs	-
	(Step 1)	(S	step 2)	
Units to be accounted for Work in process, February 1 Started into production Total units	15,000 <u>45,000</u> <u>60,000</u>			
Units accounted for				
Transferred out Work in process, February 28 Total units	49,000 <u>11,000</u> <u>60,000</u>	49,000 <u>11,000</u> <u>60,000</u>	49,000 <u>2,200</u> <u>51,200</u>	(11,000 X 20%)
			Conversion	1
Costs		Materials	Costs	Total
Unit costs (Step 3) Total cost Equivalent units Unit costs (a) ÷ (b)	(a) (b)	<u>\$198,000⁽¹⁾ 60,000</u> <u>\$3.30</u>	<u>\$128,000⁽²⁾ 51,200</u> <u>\$2.50</u>	<u>\$326,000</u> <u>\$5.80</u>
Costs to be accounted for Work in process, February 1 Started into production Total costs				\$ 32,175 <u> 293,825</u> <u>\$326,000</u>
Cost Reconciliation Schedule (Step 4)				
Costs accounted for Transferred out (49,000 X \$5.80) Work in process, February 28				\$284,200
Materials (11,000 X \$3.30) Conversion costs (2,200 X \$2.50)			\$36,300 <u>5,500</u>	41,800
Total costs				<u>\$326,000</u>
⁽¹⁾ \$18,000 + \$180,000				
⁽²⁾ \$14,175 + \$52,380 + \$61,445				

(a)	Containers in transit, April 1	0
	Containers loaded	<u>1,200</u>
	Total containers	<u>1,200</u>
	Containers off-loaded	850
	Containers in transit, April 30	<u> </u>
	Total containers	<u>1,200</u>

			Equiva	lent Units
(b)		Physical	Direct	Conversion
		Units	Materials	Costs
	Containers off-loaded	850	850	850
	Containers in transit, April 30	350	<u>140</u> *	<u> 70</u> **
	Total equivalent units		<u>990</u>	<u>920</u>
	*350 x 40% = 140			
	**350 x 20% = 70			

EXERCISE 3-15

(a)		Conversion
	Materials	Costs
Applications transferred out	800	800
Work in process, September 30	200*	120**
Equivalent units	<u>1,000</u>	<u>920</u>
*100 + 900 - 800 = 200		

**200 X 60% = 120

(b)

 Materials: $$5,500 \div 1,000 = 5.50

 Conversion costs: $$25,300^* \div 920 = 27.50

 Costs accounted for:

 Transferred out (800 X \$33.00)
 \$26,400

 Work in process, September 30

 Materials (200 X \$5.50)
 \$1,100

 Conversion costs (120 X \$27.50)
 3,300
 4,400

 Yotal costs
 \$30,800
 \$30,800

		_	Equivale	ent Units
(a)	Physica			Conversion
	Units	Mat	erials	Costs
Applications completed:				
Work in process, September 1	100		0	60
Started and completed	700	7	700	700
Work in process, September 30	200		200	120
Total units	1,000	Ç	<u>900</u>	<u>880</u>
(b)				
Materials: \$4,500 ÷ 900 = \$5.00 Conversion costs: \$21,340* ÷ 880 = \$2	24.25			
*(\$12,000 + \$9,340)				
Costs accounted for:				
Applications completed:				
Work in process, September 1	\$	64,960		
Conversion costs (60 x \$24.25)		1,455	\$ 6,41	5
Started and completed (700 x \$29.	25) _	<u> </u>	20.47	5 \$26.890
Work in process. September 30:	,			,
Materials (200 x \$5.00)			1.00	0
Conversion costs (120 x \$24.25)			2.91	0 3.910
Total costs			<u>,• i</u>	<u>\$30,800</u> *

*Total costs to be accounted for: \$1,000 + \$3,960 + \$4,500 + \$12,000 + \$9,340 = \$30,800

(a) (1) Materials:

	Physical	Materials Added	Equivalent
Production Data	Units	This Period	Units
Work in process, August 1	0	0	0
Started and completed	8,000	100%	8,000
Work in process, August 31	2,000	100%	2,000
Total	<u>10,000</u>		<u>10,000</u>

(2) Conversion Costs:

Production Data	Units	This Period	Equivalent Units	
Work in process, August 1	0	0	0	
Started and completed	8,000	100%	8,000	
Work in process, August 31	2,000	40%	800	
Total	<u>10,000</u>		<u>8,800</u>	

(b) Unit costs are:

Materials	\$45,000 ÷ 10,000 = \$4.50
Conversion costs	\$30,800* ÷ 8,800 = <u>3.50</u>
Total	<u>\$8.00</u>

*\$14,700 + \$16,100

Costs to Be Assigned	Assignment of Costs	Equivalent Units	Unit Cost		Total Costs Assigned
Total mfg. costs	Transferred out				
	Work in process, August 1	0	\$0	\$0	
\$75,800 (1)	Started and completed	8,000	\$8	64,000	\$64,000
	Work in process, August 31				
	Materials	2,000	\$4.50	\$ 9,000	
	Conversion costs	800	\$3.50	2,800	<u>11,800</u> \$75,800
(1) \$45,000 + \$14	,700 + \$16,100.				<u> </u>

(a)	(1)	Materials		Physi Unit	ical I ts	Materi This	als A s Peri	dded od	Equivalent Units
		Work in p Septen Started a Work in p	process, nber 1 nd completed process,	2,0(9,0(00 00	1	0% 100%		0 9,000
		Septer Tota	mber 30 I	<u>1,00</u> <u>12,00</u>	<u>00</u> 00	1	00%		<u>1,000</u> <u>10,000</u>
	(2)	Conversi	on Costs	Physi Unit	cal	Wor This	k Ado s Peri	led od	Equivalent Units
		Work in r						<u> </u>	
		Septen	nber 1	2.0	00		80%		1.600
		Started a	nd completed	9,0	00	1	00%		9,000
		Work in p	orocess,	•					,
		Septen	nber 30	1,0	<u>00</u>		40%		<u> 400 </u>
		Tota		<u>12,0</u>	<u>00</u>				<u>11,000</u>
(b)	Mat Cor	erials version c	\$ 60,0 osts \$132,0)00 ÷ 1()00 ÷ 1′	0,000 = 1,000 =	= \$ 6 = <u>12</u> <u>\$18</u>			
(c)	Co	osts to Be			Eauiv	alent	Unit		Total Costs
(-)	A	ssigned	Assignment of	Costs	Uni	its	Cost		Assigned
	Tota	l mfg. costs	Transferred out						
			Work in process,	9/1		0	\$ 0	\$15,200	• • • • • • •
	9	\$207,200*	Started and com	s pleted nsferred	1,6 9,0 out	00	\$12 \$18	<u> 19,200 </u>	\$ 34,400 <u>162,000</u> 196,400
			Work in process,	9/30	1.0	00	¢c	¢6 000	
			Conversion costs	6	4	100	\$12	4,800 <u>4,800</u>	<u>10,800</u> <u>\$207,200</u>

*Work in process, September 1, \$15,200 + materials costs \$60,000 + labor and overhead costs \$132,000.

- (a) Work in process, March 1800Started into production1,200Total units to be accounted for2,000Less: Transferred out1,500Work in process, March 31500
- (b) Materials:

Production Data	Physical Units	Materials Added This Period	Equivalent Units
Work in process, March 1	800	0	0
Started and completed	700	100%	700
Work in process, March 31	<u>500</u>	100%	500
lotal	<u>2,000</u>		<u>1,200</u>

Unit cost = \$6,600 ÷ 1,200 = \$5.50.

(c) Conversion costs:

Production Data	Physical Units	Work Added This Period	Equivalent Units
Work in process, March 1	800	70%	560
Started and completed	700	100%	700
Work in process, March 31	500	40%	200
Total	2,000		<u>1,460</u>

Unit cost = \$2,500 + \$1,150 = \$3,650 ÷ 1,460 = \$2.50.

- (d) In process, March 1
 \$3,680

 Conversion costs (560 X \$2.50)
 1,400

 Total cost
 \$5,080
- (e) $700 \times (\$5.50 + \$2.50) = \$5,600.$
- (f)
 Materials (500 X \$5.50)
 \$2,750

 Conversion costs (200 X \$2.50)
 500

 Total cost of work in process, March 31
 \$3,250

MAJESTIC COMPANY Welding Department Production Cost Report For the Month Ended February 28, 2014

		Equiva	_	
	Physical		Conversior	- 1
Quantities	Units	Materials	Costs	
	(Step 1)	(S	step 2)	-
Units to be accounted for		y -		
Work in process, February 1	15,000			
Started into production	<u>64,000</u>			
Total units	<u>79,000</u>			
Units accounted for				
Completed and transferred out				
Work in process, February 1	15,000	0	13,500	(15,000 X 90%)
Started and completed	<u>39,000</u> *	<u>39,000</u>	<u>39,000</u>	
Total	54,000	39,000	52,500	
Work in process, February 28	<u>25,000</u>	<u>25,000</u>	<u>5,000</u>	(25,000 X 20%)
Total units	<u>79,000</u>	<u>64,000</u>	<u>57,500</u>	
*(64,000 – 25,000)				
			Conversior	ı
Costs		Materials	Costs	Total
Unit costs (Step 3)				
Costs in February	(a)	<u>\$192,000</u>	(1) <u>\$103,500</u>	(2) <u>\$295,500</u>
Equivalent units	(b)	<u>64,000</u>	57,500	
Unit costs (a) ÷ (b)		<u>\$3.00</u>	<u>\$1.80</u>	<u>\$4.80</u>
Costs to be accounted for				
Work in process, February 1				\$ 32,175
Started into production				295,500
Total costs				<u>\$327,675</u>

*EXERCISE 3-20 (Continued)

Cost Reconciliation Schedule			
Costs accounted for (Step 4)			
Transferred out			
Work in process, February 1	\$32,175		
Costs to complete beginning work in process			
Conversion costs			
(13.500 X \$1.80)	24,300		
Total costs	<u> </u>	\$ 56,475	
Units started and completed (39,000 X \$4.80)		187,200	
Total costs transferred out			\$243,675
Work in process, February 28			•
Materials (25,000 X \$3.00)		75,000	
Conversion costs (5,000 X \$1.80)		9,000	84,000
Total costs			\$327,675

(1) Cost of materials added \$57,000 plus costs transferred in \$135,000.

(2) Labor \$35,100 plus overhead \$68,400.

SOLUTIONS TO PROBLEMS

PROBLEM 3-1A

1.	Raw Materials Inventory Accounts Payable	300,000	300,000
2.	Work in Process—Mixing Work in Process—Packaging Raw Materials Inventory	210,000 45,000	255,000
3.	Factory Labor Wages Payable	258,900	258,900
4.	Work in Process—Mixing Work in Process—Packaging Factory Labor	182,500 76,400	258,900
5.	Manufacturing Overhead Accounts Payable	810,000	810,000
6.	Work in Process—Mixing (28,000 X \$24)	672,000	
	(6,000 X \$24) Manufacturing Overhead	144,000	816,000
7.	Work in Process—Packaging Work in Process—Mixing	979,000	979,000
8.	Finished Goods Inventory Work in Process—Packaging	1,315,000	1,315,000
9.	Accounts Receivable Sales Revenue	2,500,000	2,500,000
	Cost of Goods Sold Finished Goods Inventory	1,604,000	1,604,000

(a)	Physical units			
	Units to be accounted for Work in process, Jun Started into producti Total units	ne 1 0 on <u>22,000</u> <u>22,000</u>		
	Units accounted for			
	Transferred out	20,000		
	Work in process, Ju	ne 30 <u>2,000</u>		
	Total units	<u>22,000</u>		
(b)	Equivalent units			
()		Materials	Conv	version Costs
	Unite transforred out	20.000	<u></u>	20.000
	Work in process June 30	20,000		20,000
	2 000 X 100%	2 000		
	2,000 X 100 %	2,000		800
	Total equivalent units	22,000		20,800
(c)		Unit Costs		
	Materials	\$9.00 (\$198.000 ÷ 22.000))	
	Conversion costs	\$8.00 (\$166,400* ÷ 20,800))	
	Total unit cost	\$17.00 (\$9.00 + \$8.00)	,	
	*\$53,600 + \$112,800			
(d)	Costs accounted for			
	Transferred out (20,000 X \$17.00)			\$340,000
	Work in process, June 30			
	Materials (2,000)	K \$9.00) \$1	18,000	
	Conversion cost	s (800 X \$8.00)	6,400	24,400
	Total costs			<u>\$364,400</u>

PROBLEM 3-2A (Continued)

(e)

ROSENTHAL COMPANY Molding Department Production Cost Report For the Month Ended June 30, 2014

		Equiva	Equivalent Units		
Quantities	Physical Units	Materials	Conversion Costs	- -	
	(Step 1)	(St	tep 2)		
Units to be accounted for	,	·	• /		
Work in process, June 1	0				
Started into production Total units	<u>22,000</u> <u>22,000</u>				
Units accounted for					
Transferred out	20,000	20,000	20,000		
Work in process, June 30	2,000	2,000	800	(2,000 X 40%)	
Total units	22,000	22,000	<u>20,800</u>		
			Conversion		
Costs		Materials	Costs	Total	
Unit costs (Step 3)					
Total cost	(a	a) <u>\$198,000</u>	<u>\$166,400</u>	<u>\$364,400</u>	
Equivalent units	(k	o) <u>22,000</u>	<u>20,800</u>		
Unit costs (a) ÷ (b)		<u>\$9.00</u>	<u>\$8.00</u>	<u>\$17.00</u>	
Costs to be accounted for					
Work in process, June 1				\$0	
Started into production				364,400	
Total costs				<u>\$364,400</u>	
Cost Reconciliation Schedule (Step 4)					
Costs accounted for					
Transferred out (20,000 X \$17.00)				\$340,000	
Work in process, June 30					
Materials (2,000 X \$9.00)			\$18,000		
Conversion costs (800 X \$8.00)			6,400	24,400	
Total costs				<u>\$364,400</u>	

PROBLEM 3-3A

(a) (1) Physical units

	T12	C10
	Tables	Chairs
Units to be accounted for		
Work in process, July 1	0	0
Started into production	<u>19,000</u>	<u>16,000</u>
Total units	<u>19,000</u>	<u>16,000</u>
Units accounted for		
Transferred out	16,000	15,500
Work in process, July 31	3,000	<u> </u>
Total units	<u>19,000</u>	<u>16,000</u>

(2) Equivalent units

	T12 Tables		
	Materials	Conversion Costs	
Units transferred out Work in process, July 31	16,000	16,000	
(3,000 X 100%) (3,000 X 60%)	3,000	1 800	
Total equivalent units	<u>19,000</u>	<u>17,800</u>	

	C10 Chairs		
	Materials	Conversion Costs	
Units transferred out	15,500	15,500	
Work in process, July 31			
(500 X 100%)	500		
(500 X 80%)		<u> 400 </u>	
Total equivalent units	<u>16,000</u>	<u>15,900</u>	

PROBLEM 3-3A (Continued)

(3) Unit costs

(4)

	T12 Tablaa	C10
	Tables	Chairs
Materials (\$380,000 ÷ 19,000)	\$20	
(\$288,000 ÷ 16,000)		\$18
Conversion costs (\$338,200 ^(a) ÷ 17,800)	19	
(\$206,700 ^(b) ÷ 15,900)		<u> 13 </u>
Total	<u>\$39</u>	<u>\$31</u>
^(a) \$234,200 + \$104,000		
^(b) \$110,000 + \$96,700		
T12 Tables		
Costs accounted for		
Transferred out (16,000 X \$39)		\$624,000
Work in process		•
Materials (3,000 X \$20)	\$60,000	
Conversion costs (1,800 X \$19)	34,200	94,200
Total costs		<u>\$718,200</u>
<u>C10 Chairs</u>		
Costs accounted for		
Transferred out (15,500 X \$31)		\$480,500
Work in process		
Materials (500 X \$18)	\$9,000	
Conversion costs (400 X \$13)	<u>5,200</u>	14,200
Total costs		<u>\$494,700</u>

PROBLEM 3-3A (Continued)

SEAGREN INDUSTRIES INC. Cutting Department—Plant 1 Production Cost Report For the Month Ended July 31, 2014

	Equivalent Units			_
Quantities	Physical	Matariala	Conversion	1
Quantities	Units	waterials	Costs	-
	(Step 1)	(S	tep 2)	
Units to be accounted for	_			
Work in process, July 1	0			
Started into production	<u>19,000</u>			
lotal units	<u>19,000</u>			
Units accounted for				
Transferred out	16,000	16,000	16,000	
Work in process, July 31	3,000	3,000	<u>1,800</u>	(3,000 X 60%)
Total units	<u>19,000</u>	<u>19,000</u>	<u>17,800</u>	
			Conversion	1
Costs		Materials	Costs	Total
Unit costs (Step 3)				
Total cost	(a)	<u>\$380,000</u>	<u>\$338,200</u>	<u>\$718,200</u>
Equivalent units	(b)	19,000	17,800	
Unit costs (a) ÷ (b)		<u>\$ 20</u>	<u>\$ 19</u>	<u>\$39</u>
Costs to be accounted for				
Work in process, July 1				\$0
Started into production				718,200
Total costs				<u>\$718,200</u>
Cost Reconciliation Schedule (Step 4)				
Costs accounted for				
Transferred out (16.000 X \$39)				\$624.400
Work in process, July 31				, - ,
Materials (3,000 X \$20)			\$60,000	
Conversion costs (1,800 X \$19)			34,200	94,200
Total costs				\$718,200

PROBLEM 3-4A

(a)				Equiva	lent Units
			Physical Units	Materials	Conversion Costs
	Units to be accounted Work in process, Started into prod Total units	d for November 1 luction	35,000 <u>660,000</u> <u>695,000</u>		
	Units accounted for Transferred out Work in process, Total units	November 30	670,000 <u>25,000</u> <u>695,000</u>	670,000 <u>25,000</u> <u>695,000</u>	670,000 <u>10,000</u> * <u>680,000</u>
	*25,000 X 40%				
	Beginning work in	Materials cost	<u>Conversion c</u>	osts	
	process	\$ 79,000	\$ 48,150)	
	Added during month	1,589,000	563,850	(\$225	,920 + \$337,930)
	Total	<u>\$1,668,000</u>	<u>\$612,000</u>	<u>)</u> -	
	Equivalent units	<u>695,000</u>	<u>680,000</u>		
	Cost per unit	<u>\$2.40</u>	<u>\$.90</u>		
(b)	Costs accounted for Transferred out Work in process	(670,000 X \$3.3) 5, November 30	0)		\$2,211,000
	Materials (2 Conversion Total costs	5,000 X \$2.40) costs (10,000 X	(\$.90)	\$60,000 <u>9,000</u>	<u>69,000</u> <u>\$2,280,000</u>

PROBLEM 3-4A (Continued)

(C)

RIVERA COMPANY Assembly Department Production Cost Report For the Month Ended November 30, 2014

	Equivalent Units			_
Quantities	Physical Units	Materials	Conversion Costs	- -
	(Step 1)	(Ste	ep 2)	
Units to be accounted for				
Work in process, November 1	35,000			
Started into production	<u>660,000</u>			
lotal units	<u>695,000</u>			
Units accounted for				
Transferred out	670,000	670,000	670,000	
Work in process, November 30	25,000	25,000	10,000	(25,000 X 40%)
Total units	<u>695,000</u>	<u>695,000</u>	680,000	
			Conversion	l
Costs		Materials	Costs	Total
Unit costs (Step 3)				
Total cost	(a)	<u>\$1,668,000</u>	<u>\$612,000</u>	<u>\$2,280,000</u>
Equivalent units	(b)) <u>695,000</u>	<u>680,000</u>	
Unit costs (a) ÷ (b)		<u>\$2.40</u>	<u>\$.90</u>	<u>\$3.30</u>
Costs to be accounted for				
Work in process. November 1				\$ 127.150
Started into production				2,152,850
Total costs				<u>\$2,280,000</u>
Cost Reconciliation Schedule (Step 4)				
Costs accounted for				
Transforred out (670 000 X \$3 30)				\$2 211 000
Work in process. November 30				ΨΖ,ΖΤΤ,000
Materials (25.000 X \$2.40)			\$60.000	
Conversion costs			· · · / · · · ·	
(10,000 X \$.90)			9,000	69,000
Total costs				<u>\$2,280,000</u>

PROBLEM 3-5A

(a) (1)

(1)				Equiv	valent Units
			Physica Units	l Materials	Conversion Costs
	Units to be accounte Work in process Started into proc Total units	d for , July 1 luction	500 <u>1,250</u> <u>1,750</u>		
	Units accounted for Transferred out Work in process Total units *600 X 40%	, July 31	1,150 <u>600</u> <u>1,750</u>	1,150 <u>600</u> <u>1,750</u>	1,150 <u>240</u> * <u>1,390</u>
(2)	Beginning work	<u>Materials co</u>	<u>st Conv</u>	version costs	
	in process	\$ 750		\$ 600	
	Added during month Total	<u>2,400</u> <u>\$3,150</u>		<u>2,875</u> <u>\$3,475</u>	(\$1,580 + \$1,295)
	Equivalent units	<u>1,750</u>		<u>1,390</u>	
	Cost per unit	<u>\$1.80</u>		<u>\$2.50</u>	
(3)	Costs accounted for Transferred out Work in proces	: (1,150 X \$4.) s, July 31	30)	¢4.000	\$4,945
	Materials (6 Conversior Total costs	ouu x \$1.80) 1 costs (240)	X \$2.50)	\$1,080 <u>600</u>	<u> 1,680</u> <u>\$6,625</u>

PROBLEM 3-5A (Continued)

(b)

MORSE COMPANY Basketball Department Production Cost Report For the Month Ended July 31, 2014

		Equiva	lent Units	
Quantities	Physical Units	Materials	Conversion Costs	
	(Step 1)	(St	tep 2)	
Units to be accounted for Work in process, July 1 Started into production Total units	500 <u>1,250</u> <u>1,750</u>			
Units accounted for				
Transferred out Work in process, July 31 Total units	1,150 <u>600</u> <u>1,750</u>	1,150 <u>600</u> <u>1,750</u>	1,150 <u>240</u> <u>1,390</u>	
Costs		Materials	Conversion Costs	Total
Unit costs (Step 3) Costs in July Equivalent units Unit costs (a) ÷ (b)	(a) (b)) <u>\$3,150</u>) <u>1,750</u> <u>\$1.80</u>	<u>\$3,475</u> <u>1,390</u> <u>\$2.50</u>	<u>\$6,625</u> <u>\$4.30</u>
Costs to be accounted for Work in process, July 1 Started into production Total costs				\$1,350 <u>5,275</u> <u>\$6,625</u>
Cost Reconciliation Schedule (Step 4)				
Costs accounted for Transferred out (1,150 X \$4.30) Work in process, July 31 Materials (600 X \$1.80)			\$1,080	\$4,945
Conversion costs (240 X \$2.50) Total costs			600	<u>1,680</u> <u>\$6,625</u>

(a) Computation of equivalent units:

(b)

		Equival	lent Units
	Physical Units	Materials	Conversion Costs
Units accounted for			
Transferred out	120.000	120.000	120.000
Work in process, October 31 (60% materials,			
40% conversion costs)	<u>50,000</u>	<u>30,000</u>	20,000
Total units	<u>170,000</u>	<u>150,000</u>	<u>140,000</u>
Materials: \$240,000 ÷ 150,000 equ Conversion cost: \$105,000 ÷ 140, Total unit cost, October	uivalent uni 000 equival	ts =	51.60 .75 52.35
Cost Reconciliation Schedule			
Costs accounted for			
Transferred out (120,000 X \$2	2.35)		\$282,000
Work in process, October 31			
Materials (30,000 X \$1.60		\$48,000	
Conversion costs (20,00	0 X \$0.75)	15,000	<u>63,000</u>
I OTAL COSTS			<u>\$345,000</u>

(a) Bicycles

(1) Equivalent units—Materials

-			Materials	
	Physical Units		Added This Period	Equivalent Units
Work in process, March 1	200		0%*	0
Started and completed	950	(1,250 - 300)	100%	950
Work in process, March 31	300		100%	300
Total	<u>1,450</u>			<u>1,250</u>

*All materials are added at the beginning of the production process

Equivalent units—Conversion

	Physica Units	l -	Conversi Added This Peri	on od	Equivalent Units
Work in process, March 1	200		20%	(1 – .8)) 40
Started and completed	950	(1,250 - 300)	100%		950
Work in process, March 31	300		40%		120
Total	<u>1,450</u>				<u>1,110</u>

(2) Unit costs

	Materials	Conversion
Costs in March (a)	\$50,000	\$55,500**
Equivalent units (b)	1,250	1,110
Unit costs (a) ÷ (b)	<u>\$40</u>	<u>\$50</u>

**Direct Labor \$25,500 + Manufacturing Overhead \$30,000

*PROBLEM 3-7A (Continued)

(3) Assignment of costs to units transferred out and in process

Costs to Be Assigned	Assignment of Costs	Equivalent Units	Unit Cost		Total Costs Assigned
Total mfg. costs	Transferred out				
	Work in process, March 1			\$19,280	
\$124,780***	Conversion	40	\$50	2,000	
	Started and completed	950	\$90	85,500	
	Total costs transferred out				\$106,780
	Work in process, March 31				
	Materials	300	\$40	12,000	
	Conversion costs	120	\$50	6,000	18,000
	Total costs				<u>\$124,780</u>

***Work in process, March 1, \$19,280 + Materials \$50,000 + Labor \$25,500 + Overhead \$30,000

Tricycles

(1) Equivalent units—Materials

	Physical Units	Materials Added This Period	Equivalent Units
Work in process, March 1	100	0%*	0
Started and completed	740 (800 – 60)	100%	740
Work in process, March 31 Total	<u>60</u> 900	100%	<u>60</u> <u>800</u>

*All materials are added at the beginning of the production process

Equivalent units—Conversion

-	Physical Units	Conversion Added This Period	Equivalent Units
Work in process, March 1	100	25% (1 – .75)	25
Started and completed	740 (800 – 60)	100%	740
Work in process, March 31	<u>60</u>	25%	<u>15</u>
Total	<u>900</u>		<u>780</u>

*PROBLEM 3-7A (Continued)

(2) Unit costs

	Materials	Conversion
Costs in March (a)	<u>\$30,400</u>	<u>\$35,100</u> **
Equivalent units (b)	800	780
Unit costs (a) ÷ (b)	<u>\$38</u>	<u>\$45</u>

**Direct Labor \$15,100 + Manufacturing Overhead \$20,000

(3) Assignment of costs to units transferred out and in process

Costs to Be Assigned	Assignment of Costs	Equivalent Units	Unit Cost		Total Costs Assigned
Total mfg. costs	Transferred out				
-	Work in process, March 1			\$ 6,125	
\$71,625***	Conversion	25	\$45	1,125	
	Started and completed	740	\$83	61,420	
	Total costs transferred out				\$68,670
	Work in process, March 31				
	Materials	60	\$38	2,280	
	Conversion costs	15	\$45	675	2,955
	Total costs				<u>\$71,625</u>

***Work in process, March 1, \$6,125 + Materials \$30,400 + Labor \$15,100 + Overhead \$20,000

*PROBLEM 3-7A (Continued)

(b)

RONDELI COMPANY Production Cost Report—Bicycles For the Month Ended March 31

		Equiva	lent Units
Quantitian	Physical	Motoriala	Conversion
Quantities	Units	Materials	Costs
	(Step 1)	(St	ер 2)
Units to be accounted for	000		
Work in process, March 1	200		
Started into production	<u>1,250</u>		
i otal units	<u>1,450</u>		
Units accounted for			
Completed and transferred out			
Work in process March 1	200	0	40
Started and completed	950	950	950
Work in process March 31	300	300	120
Total unite	<u> </u>	<u> </u>	1 1 1 0
Total units	<u>1,430</u>	<u>1,230</u>	<u>1,110</u>
		Conversion	
Costs	Materials	Costs	Total
<u>Unit costs</u> (Step 3)			
Costs in March (a)	\$50,000	\$ 55,500	<u>\$105,500</u>
Equivalent units (b)	1,250	1,110	
Unit costs [(a) ÷ (b)]	<u>\$40</u>	<u>\$50</u>	<u>\$90</u>
Costs to be accounted for			
Work in process, March 1		\$ 19,280	
Started into production		105 500*	
Total costs		<u>\$124 780</u>	
		<u>\\\</u> 124,100	
Cost Reconciliation Schedule (Step 4)			
Costs accounted for			
Transferred out			
Work in process. March 1	\$19.280		
Conversion costs to complete	· · , · · ·		
beginning inventory (40 X \$50)	2.000		
Started and completed (950 X \$90)	85.500	\$106.780	
Work in process. March 31		<i> </i>	
Materials (300 X \$40)	12.000		
Conversion costs (120 X \$50)	6.000	18,000	
Total costs		\$124.780	
		<u>* 11 </u>	
^(\$50,000 + \$25,500 + \$30,000)			

PROBLEM 3-1B

1.	Raw Materials Inventory	25,000	
	Accounts Payable		25,000
2.	Work in Process—Blending	18,930	
	Work in Process—Packaging	9,140	
	Raw Materials Inventory		28,070
3.	Factory Labor	25,770	
	Wages Payable		25,770
4.	Work in Process—Blending	15,320	
	Work in Process—Packaging	10,450	
	Factory Labor		25,770
5.	Manufacturing Overhead	36,500	
	Accounts Payable		36,500
6.	Work in Process—Blending (900 X \$28)	25,200	
	Work in Process—Packaging (300 X \$28)	8,400	
	Manufacturing Overhead		33,600
7.	Work in Process—Packaging	44,940	
	Work in Process—Blending		44,940
8.	Finished Goods Inventory	67,490	
	Work in Process—Packaging		67,490
9.	Accounts Receivable	90,000	
	Sales Revenue	-	90,000
	Cost of Goods Sold	62,000	
	Finished Goods Inventory		62,000

PROBLEM 3-2B

(a)	Physical units				
	Units to be accounted for				
	Work in process, Janu	ary 1	0		
	Started into productio	n	<u>50,000</u>		
	Total units		<u>50,000</u>		
	Units accounted for				
	Transferred out		47,500		
	Work in process, Janu	ary 31	2,500		
	Total units	2	50,000		
(b)	Equivalent units				
			Materials	Conv	ersion Costs
	Units transferred out		47,500		47,500
	Work in process, January 3	1			
	2,500 X 100%		2,500		
	2,500 X 40%				1,000
	Total equivalent units		<u>50,000</u>		<u>48,500</u>
(C)	-		Unit Costs		
	Materials	\$10.20	(\$510,000 ÷ 5	0,000)	
	Conversion costs	<u>\$ 5.00</u>	(\$242,500 ÷ 4	8,500)	
	Total manufacturing	<u>\$15.20</u>	(\$10.20 + \$5.0	00)	
(d)	Costs accounted for				
	Transferred out (47,500 >	(\$15.20)			\$722,000
	Work in process, Janua	ry 31			
	Materials (2,500 X \$	10.20)		\$25,500	
	Conversion costs (1	,000 X \$	5.00)	<u>5,000</u>	<u> </u>
	Total costs				<u>\$752,500</u>

PROBLEM 3-2B (Continued)

(e)

STEINER CORPORATION Molding Department Production Cost Report For the Month Ended January 31, 2014

		Equiva	alent Units	_
Quantities	Physical Units	Materials	Conversion Costs	
	(Step 1)	(S	(tep 2)	
Units to be accounted for		ι-		
Work in process, January 1	0			
Started into production	<u>50,000</u>			
Total units	<u>50,000</u>			
Units accounted for				
Transferred out	47,500	47,500	47,500	
Work in process, January 31	2,500	2,500	<u>1,000</u>	(2,500 X 40%)
Total units	<u>50,000</u>	<u>50,000</u>	<u>48,500</u>	
			Conversion	1
Costs		Materials	Costs	Total
Unit costs (Step 3)				_
Total cost	(a	a) <u>\$510,000</u>	<u>\$242,500</u>	<u>\$752,500</u>
Equivalent units	(k	b) <u>50,000</u>	48,500	
Unit costs (a) ÷ (b)		<u>\$10.20</u>	<u>\$5.00</u>	<u>\$15.20</u>
Costs to be accounted for				
Work in process, January 1				\$0
Started into production				752,500
Total costs				<u>\$752,500</u>
Cost Reconciliation Schedule (Step 4)				
Costs accounted for				
Transferred out (47,500 X \$15.20)				\$722,000
Work in process, January 31				. ,
Materials (2,500 X \$10.20)			\$25,500	
Conversion costs (1,000 X \$5.00)			5,000	30,500
Total costs				<u>\$752,500</u>

PROBLEM 3-3B

(a) (1) Physical units

	R12	F24
	Refrigerators	Freezers
Units to be accounted for		
Work in process, June 1	0	0
Started into production	<u>20,000</u>	<u>20,000</u>
Total units	20,000	<u>20,000</u>
Units accounted for		
Transferred out	16,000	17,500
Work in process, June 30	4,000	2,500
Total units	<u>20,000</u>	<u>20,000</u>

(2) Equivalent units

	RIZ Reingerators		
	Materials	Conversion Costs	
Units transferred out	16,000	16,000	
Work in process, June 30 (4,000 X 100%) (4,000 X 75%) Total equivalent units	4,000 <u>20,000</u>	<u>3,000</u> <u>19,000</u>	
	F24 F	Freezers	
		Conversion	
	Materials	Costs	
Units transferred out	17,500	17,500	

Work in process, June 30 (2,500 X 100%) (2,500 X 60%) Total equivalent units

17,500	17,500
2,500	
	<u>1,500</u>
20.000	19,000

D12 Defrigerators

PROBLEM 3-3B (Continued)

(3) Unit costs

	R12 Refrigerators	F24 Freezers
Materials (\$840,000 ÷ 20,000)	\$42	
(\$720,000 ÷ 20,000)		\$36
Conversion costs (\$665,000 ^(a) ÷ 19,000)	35	
(\$551,000 ^(b) ÷ 19,000)		<u>29</u>
Total	<u>\$77</u>	<u>\$65</u>
^(a) \$245,000 + \$420,000		
^(b) \$259,000 + \$292,000		

(4)	R12 Refrigerators		
• •	Costs accounted for		
	Transferred out (16,000 X \$77)		\$1,232,000
	Work in process		
	Materials (4,000 X \$42)	\$168,000	
	Conversion costs		
	(3,000 X \$35)	105,000	273,000
	Total costs		<u>\$1,505,000</u>

F24 Freezers

	\$1,137,500
\$90,000	
43,500	133,500
	<u>\$1,271,000</u>
	\$90,000 <u>43,500</u>

PROBLEM 3-3B (Continued)

(b)

BORMAN CORPORATION Stamping Department—Plant A Production Cost Report For the Month Ended June 30, 2014

		Equiva	lent Units	
Quantities	Physical Units	Materials	Conversion Costs	
	(Step 1)	(St	tep 2)	
Units to be accounted for		(-		
Work in process, June 1	0			
Started into production	<u>20,000</u>			
Total units	<u>20,000</u>			
Units accounted for				
Transferred out	16,000	16,000	16,000	
Work in process, June 30	4,000	4,000	3,000	(4,000 X 75%)
Total units	<u>20,000</u>	<u>20,000</u>	<u>19,000</u>	
			Conversion	
Costs		Materials	Costs	Total
Unit costs (Step 3)				
Total cost	(a)) <u>\$840,000</u>	<u>\$665,000</u>	<u>\$1,505,000</u>
Equivalent units	(b)) <u>20,000</u>	<u> 19,000</u>	
Unit costs (a) ÷ (b)		<u>\$42</u>	<u>\$35</u>	<u>\$77</u>
Costs to be accounted for				
Work in process, June 1				\$0
Started into production				<u>1,505,000</u>
Total costs				<u>\$1,505,000</u>
Cost Reconciliation Schedule (Step 4)				
Costs accounted for				
Transferred out (16.000 X \$77)				\$1.232.000
Work in process, June 30				, , - ,
Materials (4,000 X \$42)			\$168,000	
Conversion costs (3,000 X \$35)			105,000	273,000
Total costs				<u>\$1,505,000</u>

PROBLEM 3-4B

(a)				Equiva	lent Units
			Physical Units	Materials	Conversion Costs
	Units to be accounted Work in process, Started into prod Total units	d for October 1 uction	25,000 <u>435,000</u> <u>460,000</u>		
	Units accounted for Transferred out Work in process, Total units	October 31	425,000 <u>35,000</u> <u>460,000</u>	425,000 <u>35,000</u> <u>460,000</u>	425,000 <u>14,000</u> * <u>439,000</u>
	*35,000 X 40%				
	Beginning work in	<u>Materials cost</u>	<u>Conversion c</u>	<u>osts</u>	
	process Added during month Total	\$ 29,000 <u> 1,006,000</u> <u>\$1,035,000</u>	\$ 16,500 <u>246,900</u> <u>\$263,400</u>	(\$138,	900 + \$108,000)
	Equivalent units	<u>460,000</u>	<u>439,000</u>		
	Cost per unit	<u>\$2.25</u>	<u>\$.60</u>		
(b)	Costs accounted for Transferred out Work in process Materials (3 Conversion	(425,000 X \$2.8 5, October 31 5,000 X \$2.25) costs (14,000 X	5) (\$.60)	\$78,750 <u>8,400</u>	\$1,211,250 <u>87,150</u>
	Total costs	<u> </u>	-		<u>\$1,298,400</u>

PROBLEM 3-4B (Continued)

(C)

LUXMAN COMPANY Assembly Department Production Cost Report For the Month Ended October 31, 2014

		Equival	ent Units	_
Quantities	Physical Units	Materials	Conversion Costs	
	(Step 1)	(Ste	ep 2)	
Units to be accounted for	,	· ·	• /	
Work in process, October 1	25,000			
Started into production	<u>435,000</u>			
Total units	<u>460,000</u>			
Units accounted for				
Transferred out	425,000	425,000	425,000	
Work in process, October 31	35,000	35,000	14,000	(35,000 X 40%)
Total units	<u>460,000</u>	<u>460,000</u>	<u>439,000</u>	
			Conversion	
Costs		Materials	Costs	Total
Unit costs (Step 3)				
Total cost	(2	a) \$1.035.000	\$263,400	\$1.298.400
Equivalent units	()	$(1) \frac{1}{460.000}$	439.000	* . , = ,
Unit costs (a) ÷ (b)	(-	<u>\$2.25</u>	<u>\$.60</u>	<u>\$2.85</u>
Costs to be accounted for				
Work in process, October 1				\$ 45,500
Started into production				1,252,900
Total costs				<u>\$1,298,400</u>
Cost Reconciliation Schedule (Step 4)				
Costs accounted for				
Transforred out (425 000 X \$2 85)				\$1 211 250
Work in process October 31				ψ1,211,230
Materials (35 000 X \$2 25)			\$78,750	
Conversion costs (14 000 X \$ 60)			8,400	87,150
Total costs				<u>\$1,298,400</u>

PROBLEM 3-5B

(a)	(1)				Equiva	lent Units
				Physical Units	<u>Materials</u>	Conversion Costs
		Units to be accounted Work in process, Started into produ Total units	d for May 1 uction	500 <u>2,000</u> <u>2,500</u>		
		Units accounted for Transferred out Work in process, Total units *800 X 40%	May 31	1,700 <u>800</u> <u>2,500</u>	1,700 <u>800</u> <u>2,500</u>	1,700 <u>320</u> * <u>2,020</u>
	(2)	Beginning work in process Added during month Total Equivalent units Cost per unit	<u>Materials cos</u> \$15,000 <u>50,000</u> <u>\$65,000</u> <u>2,500</u> <u>\$26</u>	<u>5t</u> <u>Conversi</u> \$18, <u>52,</u> <u>\$70,</u> <u>2,</u>	<u>on costs</u> 000 <u>700</u> (\$19 <u>700</u> <u>020</u> <u>\$35</u>	9,020 + \$33,680)
	(3)	Costs accounted for Transferred out Work in process Materials (8 Conversion Total costs	(1,700 X \$61 s, May 31 600 X \$26) a costs (320)) X \$35)	\$20,800 <u>11,200</u>	\$103,700 <u>32,000</u> <u>\$135,700</u>

PROBLEM 3-5B (Continued)

(b)

SWINN COMPANY Bicycle Department Production Cost Report For the Month Ended May 31, 2014

		Equiva	Equivalent Units	
Quantities	Physical Units	Materials	Conversion Costs	-
	(Step 1)	(St	tep 2)	
Units to be accounted for	· · /	· ·	• /	
Work in process, May 1	500			
Started into production	<u>2,000</u>			
Total units	<u>2,500</u>			
Units accounted for				
Transferred out	1,700	1,700	1,700	
Work in process, May 31	800	800	320	(800 X .40)
Total units	<u>2,500</u>	<u>2,500</u>	<u>2,020</u>	
			Conversion	1
Costs		Materials	Costs	Total
Unit costs (Step 3)				
Total cost	(a)) <u>\$65,000</u>	<u>\$70,700</u>	<u>\$135,700</u>
Equivalent units	(b)) <u>2,500</u>	<u>2,020</u>	
Unit costs (a) ÷ (b)		<u>\$26</u>	<u>\$35</u>	<u>\$61</u>
Costs to be accounted for				
Work in process, May 1				\$ 33,000
Started into production				102,700
Total costs				<u>\$135,700</u>
Cost Reconciliation Schedule (Step 4)				
Costs accounted for				
Transferred out (1,700 X \$61)				\$103,700
Work in process, May 31				. ,
Materials (800 X \$26)			\$20,800	
Conversion costs (320 X \$35)			<u>11,200</u>	32,000
Total costs				<u>\$135,700</u>

(a) Computation of equivalent units:

(b)

		Equiva	lent Units		
	Physical		Conversion		
	Units	Materials	Costs		
Units accounted for					
Transferred out	66,000	66,000	66,000		
Work in process, March 31					
(60% materials,					
20% conversion costs)	<u>20,000</u>	<u>12,000</u>	4,000		
Total units	<u>86,000</u>	<u>78,000</u>	<u>70,000</u>		
Computation of March unit costsMaterials: \$156,000 ÷ 78,000 equivalent units =\$2.00Conversion cost: \$98,000 ÷ 70,000 equivalent units =1.40Total unit cost, March\$3.40					
Cost Reconciliation Schedule					
Costs accounted for Transferred out (66,000 X \$3.4 Work in process, March 31	40)		\$224,400		
Materials (12,000 X \$2.00)) V ¢4 40)	\$24,00			
Total costs	ΑΨΙ.4 U)	<u>5,60</u>	<u>0 29,000</u> \$254,000		
		•••••	<u>_\+,000</u>		

(a) Basketballs

(1) Equivalent units—Materials

	Physical Units	Added This Period	Equivalent Units
Work in process, August 1	500	0%*	0
Started and completed	1,400 (2,000 - 600)	100%	1,400
Work in process, August 31	600	100%	600
Total	2,500		2,000

Meteriale

*All materials are added at the beginning of the production process

Equivalent units—Conversion

	Physical Units		Conversi Added This Peri	Equivalent Units	
Work in process, August 1	500		40%	(1 – .6)	200
Started and completed	1,400	(2,000 - 600)	100%		1,400
Work in process, August 31	600		50%		300
Total	2,500				1,900

(2) Unit costs

	Materials	Conversion
Costs in August (a)	\$1,600	\$2,280**
Equivalent units (b)	2,000	1,900
Unit costs [(a) ÷ (b)]	<u>\$.80</u>	<u>\$1.20</u>

**Direct Labor \$1,280 + Manufacturing Overhead \$1,000

*PROBLEM 3-7B (Continued)

Costs to Be Assigned	Assignment of Costs	Equivalent Units	Unit Cost		Total Costs Assigned
Total mfg. costs	Transferred out				
-	Work in process, August 1			\$1,125	
\$5,005***	Conversion	200	1.20	240	
	Started and completed	1,400	2.00	2,800	
	Total costs transferred out	,			\$4,165
	Work in process, August 31				
	Materials	600	.80	480	
	Conversion costs	300	1.20	360	840
	Total costs				\$5,005

(3) Assignment of costs to units transferred out and in process

***Work in process, August 1, \$1,125 + Materials \$1,600 + Labor \$1,280 + Overhead \$1,000

Soccer balls

(1) Equivalent units—Materials

	Physica Units		Materials Added This Period	Equivalent Units
Work in process, August 1	200		0%*	0
Started and completed	1,850	(2,000 – 150)	100%	1,850
Work in process, August 31	150		100%	150
Total	2,200			2,000

*All materials are added at the beginning of the production process

Equivalent units—Conversion

	Physica Units	1	Conversi Added This Peri	on E od	quivalent Units
Work in process, August 1	200	-	20%	(1 – .8)	40
Work in process, August 31	1,850 <u>150</u>	(2,000 – 150)	100% 70%		1,850 <u>105</u>
Total	<u>2,200</u>				<u>1,995</u>

*PROBLEM 3-7B (Continued)

(2) Unit costs

	Materials	Conversion
Costs in August (a)	\$2,800	\$2,394**
Equivalent units (b)	2,000	<u>1,995</u>
Unit costs (a) ÷ (b)	<u>\$1.40</u>	<u>\$1.20</u>

**Direct Labor \$1,000 + Manufacturing Overhead \$1,394

(3) Assignment of costs to units transferred out and in process

Costs to Be Assigned	Assignment of Costs	Equivalent Units	Unit Cost		Total Costs Assigned
Total mfg. costs	Transferred out				
	Work in process, August 1			\$ 450	
\$5,644***	Conversion	40	\$1.20	48	
	Started and completed	1,850	\$2.60	4,810	
	Total costs transferred out				\$5,308
	Work in process, August 31				
	Materials	150	\$1.40	210	
	Conversion costs	105	\$1.20	126	336
	Total costs				<u>\$5,644</u>

***Work in process, August 1, \$450 + Materials \$2,800 + Labor \$1,000 + Overhead \$1,394

*PROBLEM 3-7B (Continued)

(b)

HOLIDAY COMPANY Production Cost Report—Basketballs For the Month Ended August 31

		Equivalent Units		
Quantities	Physical Units	Materials	Conversion Costs	
	(Step 1)	(Ste	ep 2)	
Units to be accounted for	,		• /	
Work in process, August 1	500			
Started into production	<u>2,000</u>			
Total units	<u>2,500</u>			
Units accounted for				
Completed and transferred out				
Work in process, August 1	500	0	200	
Started and completed	1,400	1,400	1,400	
Work in process, August 31	<u> 600 </u>	<u> 600 </u>	<u> </u>	
Total units	<u>2,500</u>	<u>2,000</u>	<u>1,900</u>	
		Conversion		
Costs	Materials	Costs	Total	
<u>Unit costs</u> (Step 3)				
Costs in August (a)	\$1,600	\$2,280	<u>\$3,880</u>	
Equivalent units (b)	2,000	<u>1,900</u>		
Unit costs [(a) ÷ (b)]	<u>\$.80</u>	<u>\$1.20</u>	<u>\$2.00</u>	
Costs to be accounted for				
Work in process, August 1		\$1,125		
Started into production		<u>3,880*</u>		
Total costs		<u>\$5,005</u>		
Cost Reconciliation Schedule				
Costs accounted for				
Transferred out				
Work in process, August 1	\$1,125			
Conversion costs to complete				
beginning inventory (200 X \$1.20)	240			
Started and completed	2,800	\$4,165		
(1,400 × \$2.00) Work in process August 31				
Matariale (600 X ¢ 20)	180			
Conversion costs (200 X \$1 20)	260 260	840		
Total costs		\$5,005		
		<u> </u>		
*(\$1,600 + \$1,280 + \$1,000)				

CURRENT DESIGNS Fabrication Department Production Cost Report For the Month Ended April 30, 2014

				Equivale	nt Uni	its
	Physica	al			Conv	ersion
Quantities	Units		Materials		Co	osts
	(Step 1)		(Step 2)		
Units to be accounted for	\ -	,		()		
Work in process, April 1	30					
Started into production	72					
Total units	<u>102</u>					
Units accounted for						
Transferred out	67		67		(67
Work in process, April 30	35		<u> </u>	X 20%)	-	<u>14</u> (35 X 40%)
Total units	<u>102</u>		<u>74</u>			<u>81</u>
				Conve	rsion	
Costs		M	aterials	Cos	sts	Total
Unit costs (Step 3)						
Total cost*		(a)	\$25,900	\$48,	600	<u>\$74,500</u>
Equivalent units		(b)	74		81	t
Unit costs [(a) ÷ (b)]		. ,	<u>\$ 350</u>	\$	<u>600</u>	<u>\$ 950</u>
Costs to be accounted for						
Work in process, April 1						\$17,400
Started into production						<u>57,100</u>
Total costs						<u>\$74,500</u>
Cost Reconciliation Schedule (Step 4)						
Costs accounted for						
Transferred out (67 X \$950)						\$63,650
Work in process, April 30						
Materials (7 X \$350)				\$2,	450	
Conversion costs (14 X \$600))			<u> </u>	<u>400</u>	<u>10,850</u>
Total costs						<u>\$74,500</u>
*Material costs = \$8,400 + \$17,50	0					
Conversion costs = \$9,000 + \$39,	,600					

BYP 3-2 DECISION-MAKING ACROSS THE ORGANIZATION

- (a) The unit cost suggests that Joe took the highest total costs and divided these costs by the units started into production. The highest total costs would be the total costs charged to the Mixing Department (\$88,000 + \$573,000 + \$765,000) divided by the units started during July (100,000 gallons), which results in a per unit cost of \$14.26 (\$1,426,000 ÷ 100,000).
- (b) The principal errors made by Joe were: (1) he did not compute equivalent units of production; (2) he did not use the weighted-average costing method; and (3) he did not assign costs to ending work-in-process.

BYP 3-2 (Continued)

(C)

FLORIDA BEACH COMPANY Mixing Department Production Cost Report For the Month Ended July 31, 2014

		_		
	Physical		Conversion	
Quantities	Units	Materials	Costs	_
	(Step 1)	(Si	tep 2)	
Units to be accounted for		· ·	• /	
Work in process, July 1	8,000			
Started into production	<u>100,000</u>			
Total units	<u>108,000</u>			
Units accounted for				
Transferred out	103,000	103,000	103,000	
Work in process, July 31	5,000	<u> </u>	<u>1,000</u>	(5,000 X 20%)
Total units	<u>108,000</u>	<u>108,000</u>	<u>104,000</u>	
			Conversior	1
Costs		Materials	Costs	Total
Unit costs (Step 3)				
Total cost		(a) <u>\$594,000</u>	<u>\$832,000</u>	<u>\$1,426,000</u>
Equivalent units		(b) <u>108,000</u>	104,000	<u> </u>
Unit costs (a) ÷ (b)		<u>\$5.50</u>	<u>\$8.00</u>	<u>\$13.50</u>
Costs to be accounted for				
Work in process, July 1				\$ 88,000
Started into production				<u>1,338,000</u>
Total costs				<u>\$1,426,000</u>
Cost Reconciliation Schedule (Step 4)				
Costs accounted for				
Transferred out (103.000 X \$13.50)				\$1.390.500
Work in process, July 31				, ,,
Materials (5,000 X \$5.50)			\$27,500	
Conversion costs (1,000 X \$8.00)			8,000	35,500
Total costs				<u>\$1,426,000</u>

- (a) The unit cost of materials is \$150 (\$450,000 ÷ 3,000).
- (b) The materials cost of the goods transferred out is \$375,000 (2,500 X \$150). Conversion costs, therefore, are \$225,000 (\$600,000 \$375,000), and per unit conversion cost is \$90 (\$225,000 ÷ 2,500).
- (c) There are 500 units in ending work-in-process inventory (3,000 started 2,500 transferred out). The materials cost is \$75,000 (500 X \$150). Thus, the conversion costs in the inventory are \$36,000 (\$261,000 \$225,000).
 \$36,000 divided by \$90 per unit conversion cost equals 400 equivalent units or 80% (400 ÷ 500) complete.

(a) The outer shell of the paintballs is made from a mixture that includes water, sweeteners, food ingredients, and most importantly, gelatin. All of the ingredients used to make paintballs are food grade, biodegradable products. The "paint" filling inside a paintball is comprised of the same inert ingredient used in cough syrup, as well as crayon wax.

After mixing the gelatin and other materials, the mixture is heated, and then spread on rolling drums which create thin gelatin ribbons. Each of the ribbons then passes over a rotating die. The dies are designed so that they can form round capsules. The dies press against each other as they rotate. As the dies meet, both shells are filled with paint, which is injected into the area between the sheets. The two halves then seal as they press against each other to form a filled capsule.

Once the capsules are sealed they drop out of the machine to become paintballs. They pass along a conveyor belt to a tumble drier, then onto a drying rack. Once they are dry, they go into a counting machine, then into a packing machine which packs exactly the correct number of balls into each container.

(b) Materials: water, sweeteners, food ingredients, gelatin, "cough syrup material", crayon wax, and food coloring.

Labor: People would be needed run the various machines.

Overhead: Depreciation and maintenance of the various machines.

It would appear that overhead would be by far the highest cost because the process is very automated. Machines are needed for mixing the gelatin, heating it, rolling it into ribbons, making the capsules, filling the capsules, sorting and drying the capsules, counting the capsules and packing them.

(c) This would appear to be a perfect situation for the use of process costing. Paintballs are a high volume product, and the paintballs are very homogenous. While there may be some differences in various types of paintballs that would merit keeping track of specific costs to make the various types, the primary method of cost determination would be process costing.

- To: Diane Barone, Regional Sales Manager
- From: Student, Accounting Manager
- Re: Production Cost Reports

Diane, congratulations again on your promotion! It's going to be great working with you. It kind of reminds me of our days at Dairy-Freeze after school (although this work is more fun, and it certainly pays better!).

I'll try to clear up some of the questions you raised in your email. Here in the Snack Foods Division we use process costing rather than the job order system that Special Projects uses. The reason for this is that we produce all our products in a more or less continuous process, even when we run occasional special orders. You see, all our workers are assigned a particular part of the process to control. One might be in charge of making sure the mixing machines work properly, while another verifies the weight of the finished products. Whichever job a worker is assigned, he or she stays with it to completion, or at least the completion of that particular process. That's different from what you had in Special Projects, where workers moved from job to job. That's why we don't usually track the orders separately. Our special orders are for various quantities of the foods we produce, so only the Packing Department needs to be concerned with the particular set of products shipped to the particular customer—which is its ordinary concern anyway.

Your next question was about what an equivalent unit is. Well, you know already that Special Projects bids on various jobs, and then costs are recorded when the jobs are complete. The costs accumulated on jobs that aren't complete are reflected in Work in Process inventory. We in Snack Foods can't use that method for a simple reason—we produce our products in huge batches that we keep going fairly continuously. Or, in other words, we don't have a "job" that we can record as "complete." A batch may contain enough of our product to fill thirty or more orders, so we may have thirty or more "jobs" in each batch. One job may happen to be filled from two batches. Since the cost of each batch is about the same, it isn't worth keeping track of separately.

BYP 3-5 (Continued)

At the end of the month, we need to record what we finished and what still remains undone. Equivalent units are the way we measure the amount of work we have done on our work in process. It's kind of like comparing the contents of 4-ounce cups with the contents of 12-ounce cups. It doesn't make sense to compare by counting the number of cups you have. You need to find out how many ounces you have in one set; then you can get a meaningful comparison with the ounces you have in the other set. We compare by the number of "units" of materials or labor that are required to finish a product completely. If it requires 12 ounces of flour and 15 minutes of labor for a finished bag of pretzels, for example, then the 12 ounces and 15 minutes are "finished equivalents." If we have enough pretzels to fill 30 bags, but we've only spent 5 minutes (or 1/3 of the total required) of labor on them at the end of the month, we could have used the same amount of time and completely finished 10 bags. Thus, we have the "equivalent" of 10 bags worth of labor.

Your last question is the easiest to answer. You get four reports because we use four processes here in Snack Foods Division. Each process has to report its status at the end of every month. It's kind of like we have four miniature factories, each reporting "completion" of a certain number of products. The products from one department are used as raw materials for other departments, so we have a chain of reports. Notice that the units and costs transferred out of Process 1 are the same as the units and costs transferred in to Process 2, and so on.

I hope this helps. Call, write, or email me any time!

- (a) The stakeholders in this situation are:
 - ► Jan Wooten, molding department head.
 - Tony Ferneti quality control inspector.
 - Customers of R. B. Dillman Company.
 - ► The department manager of the assembly department.
- (b) Tony is placed in an ethical dilemma. He can offend his department head by disregarding Jan's instructions and lose the support of his supervisor, and maybe lose his job. He can follow Jan's instructions and be in violation of company policy. He can also report Jan's instructions to supervisors (plant superintendent or vice-president of production). The company should make the position of quality control inspector responsible to someone other than the department head. Tony should not report to Jan.

BYP 3-7 CONSIDERING CORPORATE SOCIAL RESPONSIBILITY

- (a) Some of the costs that the company now faces include:
 - Monetary damages: The company paid \$21.4 million in fines as a result of an OSHA investigation; \$1.6 billion to compensate those affected by the accident; and \$1 billion to repair and update its refinery (plus an additional \$250 million to install safety valves)
 - Bad publicity
 - Lost sales
 - Cost of cleaning up the affected area including transporting workers to the site; housing workers near the site; per diem for cleanup workers; safety equipment for the workers
 - Transportation and storage/disposal fees for any contaminants removed from the area
 - Legal fees associated with lawsuits/settlements
 - Reimburse the Coast Guard for any oil containment equipment provided
 - Possible air/water testing for an extensive time following the accident
- (b) Some steps that the company could have taken to reduce the environmental failure costs include:
 - Install up to date safety equipment
 - Increase the frequency and efficacy of inspections
 - Increase maintenance on older facilities
 - Be responsive to and investigate thoroughly complaints by neighbors
 and regulators
 - Invest in research to discover safer means of boosting octane
 - Locate plants further away from population centers to the extent possible