

CHAPTER 3

Process Costing

SOLUTIONS TO BRIEF EXERCISES

BRIEF EXERCISE 3-1

Mar. 31	Raw Materials Inventory	50,000	
	Accounts Payable.....		50,000
31	Factory Labor	60,000	
	Wages Payable		60,000

BRIEF EXERCISE 3-2

Mar. 31	Work in Process—Assembly Department	24,000	
	Work in Process—Finishing Department	26,000	
	Raw Materials Inventory.....		50,000
31	Work in Process—Assembly Department	35,000	
	Work in Process—Finishing Department	25,000	
	Factory Labor.....		60,000

BRIEF EXERCISE 3-3

Mar. 31	Work in Process—Assembly Department (\$35,000 X 160%)	56,000	
	Work in Process—Finishing Department (\$25,000 X 160%)	40,000	
	Manufacturing Overhead.....		96,000

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 ^c)

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

BRIEF EXERCISE 3-5

	(a) <u>Materials</u>	(b) <u>Conversion Costs</u>
Units transferred out	9,000	9,000
Work in process, November 30		
Materials (7,000 X 100%)	7,000	
Conversion costs (7,000 X 40%)		<u>2,800</u>
Total equivalent units	<u>16,000</u>	<u>11,800</u>

BRIEF EXERCISE 3-6

Total materials costs	÷	Equivalent units of materials	=	Unit materials cost
\$33,000		10,000		\$3.30
Total conversion costs	÷	Equivalent units of conversion costs	=	Unit conversion cost
\$54,000		12,000		\$4.50
Unit materials cost	+	Unit conversion cost	=	Total manufacturing cost per unit
\$3.30		\$4.50		\$7.80

BRIEF EXERCISE 3-7

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

BRIEF EXERCISE 3-8

Total materials costs \$12,000	÷	Equivalent units of materials 20,000	=	Unit materials cost \$.60
Total conversion costs* \$47,500	÷	Equivalent units of conversion costs 19,000	=	Unit conversion cost \$2.50

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

BRIEF EXERCISE 3-9

Costs accounted for			
Transferred out	(18,000 X \$3.10)		\$55,800
Work in process			
Materials	(2,000 X \$.60)	\$1,200	
Conversion costs	(1,000* X \$2.50)	<u>2,500</u>	<u>3,700</u>
Total costs			<u>\$59,500</u>

*2,000 X 50%

***BRIEF EXERCISE 3-10**

<u>Costs to Be Assigned</u>	<u>Assignment of Costs</u>	<u>Equivalent Units</u>	<u>Unit Cost</u>	<u>Total Costs Assigned</u>
	<u>Transferred out</u>			
	Work in process, 3/1	0	\$ 0	\$ 0
	Started and completed	30,000	\$16	<u>480,000</u>
				480,000
\$530,000	<u>Work in process, 3/31</u>			
	Materials	5,000	\$ 6	\$ 30,000
	Conversion costs	2,000	\$10	<u>20,000</u>
				<u>50,000</u>
				<u>\$530,000</u>

***BRIEF EXERCISE 3-11**

	<u>Equivalent Units</u>	
	<u>Materials</u>	<u>Conversion Costs</u>
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	<u>5,000</u>	<u>2,000</u>
Total units	<u>35,000</u>	<u>32,000</u>

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

COSTS

	<u>Materials</u>	<u>Conversion Costs</u>	<u>Total</u>
Unit costs			
Total costs (a)	<u>\$210,000*</u>	<u>\$320,000**</u>	<u>\$530,000</u>
Equivalent units (b)	<u>35,000</u>	<u>32,000</u>	
Unit costs (a) ÷ (b)	<u>\$ 6</u>	<u>\$ 10</u>	<u>\$ 16</u>
Costs to be accounted for			
In process, March 1			\$ 0
Started into production			<u>530,000</u>
Total costs			<u>\$530,000</u>
Costs accounted for			
Transferred out			
In process, March 1			\$ 0
Started and completed (30,000 units X \$16)			480,000
In process, March 31			
Materials (5,000 X \$6)		\$ 30,000	
Conversion costs (2,000 X \$10)		<u>20,000</u>	<u>50,000</u>
Total costs			<u>\$530,000</u>

*35,000 equivalent units X \$6 per unit
 **32,000 equivalent units X \$10 per unit

***BRIEF EXERCISE 3-12**

Total materials costs	÷	Equivalent units of materials	=	Unit materials cost
\$75,000¹		20,000		\$3.75

¹\$8,000 + \$67,000 = \$75,000

Total conversion costs	÷	Equivalent units of conversion costs	=	Unit conversion cost
\$38,000²		19,000		\$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	
Work in Process—Packaging.....	28,000	
Raw Materials Inventory.....		38,000
(To record materials used)		

Work in Process—Mixing.....	8,000	
Work in Process—Packaging.....	36,000	
Factory Labor.....		44,000
(To assign factory labor to production)		

Work in Process—Mixing.....	12,000	
Work in Process—Packaging.....	54,000	
Manufacturing Overhead.....		66,000
(To assign overhead to production)		

DO IT! 3-2 (Continued)

Work in Process—Packaging.....	21,000	
Work in Process—Mixing.....		21,000
(To record transfer of units to the Packaging Department)		
Finished Goods Inventory	106,000	
Work in Process—Packaging		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 10,000.

20,000 units + 10,000 units = 30,000 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 7,000 (70% X 10,000 units).

20,000 units + 7,000 units = 27,000 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	<u>4,000</u>	<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)	<u>12,800</u>	<u>52,800</u>
Total costs.....		<u>\$448,800</u>

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.

EXERCISE 3-2

April 30	Work in Process—Cooking	21,000	
	Work in Process—Canning	9,000	
	Raw Materials Inventory		30,000
30	Work in Process—Cooking	8,500	
	Work in Process—Canning	7,000	
	Factory Labor		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

EXERCISE 3-3

(a) Work in process, May 1	400
Started into production	<u>1,600</u>
Total units to be accounted for	2,000
Less: Transferred out	<u>1,700</u>
Work in process, May 31	<u><u>300</u></u>

(b) and (c)

	<u>Equivalent Units</u>	
	<u>Materials</u>	<u>Conversion Costs</u>
Units transferred out	1,700	1,700
Work in process, May 31		
300 X 100%	300	
300 X 40%		<u>120</u>
	<u><u>2,000</u></u>	<u><u>1,820</u></u>

	<u>Direct Materials</u>	<u>Conversion Costs</u>
Work in process, May 1	\$2,040	\$1,550
Costs added	<u>5,160</u>	<u>3,910*</u>
Total costs	<u><u>\$7,200</u></u>	<u><u>\$5,460</u></u>
Equivalent units	<u><u>2,000</u></u>	<u><u>1,820</u></u>
Unit costs	<u><u>\$3.60</u></u>	<u><u>\$3.00</u></u>

*\$2,530 + \$1,380

(d) Transferred out (1,700 X \$6.60) \$11,220

(e) Work in process

Materials (300 X \$3.60)	\$ 1,080
Conversion costs (120 X \$3.00)	<u>360</u>
	<u><u>\$ 1,440</u></u>

EXERCISE 3-4

1.	Raw Materials Inventory	62,500	
	Accounts Payable		62,500
2.	Factory Labor	60,000	
	Wages Payable		60,000
3.	Manufacturing Overhead	70,000	
	Cash		40,000
	Accounts Payable		30,000
4.	Work in Process—Cutting	15,700	
	Work in Process—Assembly	8,900	
	Raw Materials Inventory		24,600
5.	Work in Process—Cutting	33,000	
	Work in Process—Assembly	27,000	
	Factory Labor		60,000
6.	Work in Process—Cutting (1,680 X \$18)	30,240	
	Work in Process—Assembly (1,720 X \$18)	30,960	
	Manufacturing Overhead		61,200
7.	Work in Process—Assembly	67,600	
	Work in Process—Cutting		67,600
8.	Finished Goods Inventory	134,900	
	Work in Process—Assembly		134,900
9.	Cost of Goods Sold	150,000	
	Finished Goods Inventory		150,000
	Accounts Receivable	200,000	
	Sales Revenue		200,000

EXERCISE 3-5

(a)	<u>January</u>	<u>May</u>
Units to be accounted for		
Beginning work in process	0	0
Started into production	<u>13,000</u>	<u>21,000</u>
Total units	<u>13,000</u>	<u>21,000</u>
Units accounted for		
Transferred out	11,000	14,000
Ending work in process	<u>2,000</u>	<u>7,000</u>
Total units	<u>13,000</u>	<u>21,000</u>

(b)	(1) <u>Materials</u>	(2) <u>Conversion Costs</u>
January	13,000 (11,000 + 2,000)	12,200 (11,000 + 1,200)
March	15,000 (12,000 + 3,000)	12,900 (12,000 + 900)
May	21,000 (14,000 + 7,000)	19,600 (14,000 + 5,600)
July	11,500 (10,000 + 1,500)	10,600 (10,000 + 600)

EXERCISE 3-6

(a)	(1) <u>Materials</u>	(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 \div 15,000 = \3.00
 Conversion costs: $(\$16,200 + \$18,300) \div 13,800 = \$2.50$

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 \$2.50)	<u>4,500</u>	<u>13,500</u>
Total costs		<u>\$79,500</u>

EXERCISE 3-7

QUIK FURNITURE COMPANY
Sanding Department
Production Cost Report
For the Month Ended March 31, 2017

Quantities	Physical Units	Equivalent Units		
		Materials	Conversion Costs	
Units to be accounted for				
Work in process, March 1	0			
Started into production	<u>10,000</u>			
Total units	<u>10,000</u>			
Units accounted for				
Transferred out	7,000	7,000	7,000	
Work in process, March 31	<u>3,000</u>	<u>3,000</u>	<u>600</u>	(3,000 X 20%)
Total units	<u>10,000</u>	<u>10,000</u>	<u>7,600</u>	
Costs				
		Materials	Conversion Costs	Total
Unit costs				
Total cost		<u>\$33,000</u>	<u>\$57,000*</u>	<u>\$90,000</u>
Equivalent units		<u>10,000</u>	<u>7,600</u>	
Unit costs (a) ÷ (b)		<u>\$3.30</u>	<u>\$7.50</u>	<u>\$10.80</u>
Costs to be accounted for				
Work in process, March 1				\$ 0
Started into production				<u>90,000</u>
Total costs				<u>\$90,000</u>
Cost Reconciliation Schedule				
Costs accounted for				
Transferred out (7,000 X \$10.80)				\$75,600
Work in process, March 31				
Materials (3,000 X \$3.30)			\$9,900	
Conversion costs (600 X \$7.50)			<u>4,500</u>	<u>14,400</u>
Total costs				<u>\$90,000</u>

***\$21,000 + \$36,000**

EXERCISE 3-8

(a)	(1)	(2)
	<u>Materials</u>	<u>Conversion Costs</u>
Units transferred out	17,000	17,000
Work in process, April 30		
1,000 X 100%	1,000	
1,000 X 40%		400
	<u>18,000</u>	<u>17,400</u>

(b)	<u>Materials</u>	<u>Conversion Costs</u>	<u>Total</u>
Total cost	<u>\$900,000⁽¹⁾</u>	<u>\$435,000⁽²⁾</u>	\$1,335,000
Equivalent units	<u>18,000</u>	<u>17,400</u>	
Unit costs	<u>\$ 50</u>	<u>\$ 25</u>	<u>\$ 75</u>

⁽¹⁾\$100,000 + \$800,000

⁽²⁾\$ 70,000 + \$365,000

(c) Transferred out (17,000 X \$75)		\$1,275,000
Work in process		
Materials (1,000 X \$50)	\$50,000	
Conversion costs (400 X \$25)	<u>10,000</u>	60,000
Total costs		<u>\$1,335,000</u>

EXERCISE 3-9

(a) Materials: $30,000^* + 6,000 = \underline{36,000}$

Conversion costs: $30,000^* + (6,000 \times 40\%) = \underline{32,400}$

*36,000 – 6,000

(b) Materials: $\$72,000/36,000 = \underline{\$2.00}$

Conversion costs: $(\$61,000 + \$101,000)/32,400 = \underline{\$5.00}$

(c) Transferred out: $30,000 \times \$7.00 = \underline{\$210,000}$

Ending work in process:

Materials (6,000 X \$2.00)	=	\$12,000
Conversion costs (2,400 X \$5.00)	=	<u>12,000</u>
Total		<u>\$24,000</u>

EXERCISE 3-10

(a)	Physical Units	Equivalent Units	
		Materials	Conversion Costs
Beginning work in process	20,000		
Units started into production	<u>164,000</u>		
	<u>184,000</u>		
Units transferred out	160,000	160,000	160,000
Ending work in process	<u>24,000</u>	<u>24,000</u>	<u>14,400</u> (60% X 24,000)
	<u>184,000</u>	<u>184,000</u>	<u>174,400</u>

(b)	Materials	Conversion	
		Costs	Total
Costs incurred	<u>\$101,200</u>	<u>\$348,800</u>	<u>\$450,000</u>
Equivalent units	<u>184,000</u>	<u>174,400</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			
Materials (24,000 X \$.55)		\$13,200	
Conversion costs (14,400 X \$2.00)		<u>28,800</u>	<u>42,000</u>
Total costs			<u>\$450,000</u>

EXERCISE 3-11

(a)	Physical Units
Work in process, September 1	1,600
Units started into production	<u>42,900</u>
	<u>44,500</u>
Units transferred out	39,500
Work in process, September 30	<u>5,000</u>
	<u>44,500</u>

EXERCISE 3-11 (Continued)

	<u>Equivalent Units</u>	
	<u>Materials</u>	<u>Conversion Costs</u>
Units transferred out	39,500	39,500
Work in process		
5,000 X 100%	5,000	
5,000 X 10%		<u>500</u>
	<u>44,500</u>	<u>40,000</u>

(b)

	<u>Materials</u>
Work in process, September 1	
Direct materials	\$ 20,000
Costs added to production	
during September	<u>175,800</u>
Total materials cost	<u>\$195,800</u>

$\$195,800 \div 44,500 = \4.40 (Materials cost per unit)

	<u>Conversion 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>
Total conversion costs	<u>\$426,000</u>

$\$426,000 \div 40,000 = \10.65 (Conversion cost per unit)

(c) Costs accounted for

Transferred out (39,500 X \$15.05)		\$594,475
Work in process, September 30		
Materials (5,000 X \$4.40)	\$22,000	
Conversion costs (500 X \$10.65)	<u>5,325</u>	<u>27,325</u>
Total costs		<u>\$621,800</u>

EXERCISE 3-12

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.

EXERCISE 3-13

HEALTHY COMPANY
Welding Department
Production Cost Report
For the Month Ended February 28, 2017

Quantities	Physical Units (Step 1)	Equivalent Units		
		Materials	Conversion Costs (Step 2)	
Units to be accounted for				
Work in process, February 1	15,000			
Started into production	<u>51,000</u>			
Total units	<u>66,000</u>			
Units accounted for				
Transferred out	55,000	55,000	55,000	
Work in process, February 28	<u>11,000</u>	<u>11,000</u>	<u>2,200</u>	(11,000 X 20%)
Total units	<u>66,000</u>	<u>66,000</u>	<u>57,200</u>	
Costs		Materials	Conversion Costs	Total
Unit costs (Step 3)				
Total cost		(a) <u>\$198,000⁽¹⁾</u>	<u>\$143,000⁽²⁾</u>	<u>\$341,000</u>
Equivalent units		(b) <u>66,000</u>	<u>57,200</u>	
Unit costs (a) ÷ (b)		<u>\$3.00</u>	<u>\$2.50</u>	<u>\$5.50</u>
Costs to be accounted for				
Work in process, February 1				\$ 32,175
Started into production				<u>308,825</u>
Total costs				<u>\$341,000</u>
Cost Reconciliation Schedule (Step 4)				
Costs accounted for				
Transferred out (55,000 X \$5.50)				\$302,500
Work in process, February 28				
Materials (11,000 X \$3.00)			\$33,000	
Conversion costs (2,200 X \$2.50)			<u>5,500</u>	<u>38,500</u>
Total costs				<u>\$341,000</u>

⁽¹⁾\$18,000 + \$180,000

⁽²⁾\$14,175 + \$67,380 + \$61,445

EXERCISE 3-14

(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>350</u>
	Total containers	<u>1,200</u>

(b)	Physical Units	Equivalent Units	
		Direct Materials	Conversion 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 Costs
	<u>Materials</u>	<u>800</u>
Applications transferred out	800	800
Work in process, September 30	<u>300*</u>	<u>180**</u>
Equivalent units	<u>1,100</u>	<u>980</u>

*100 + 1,000 – 800 = 300

**300 X 60% = 180

(b)

Materials: $\$5,500 \div 1,100 = \5.00

Conversion costs: $\$25,480^* \div 980 = \26.00

Costs accounted for:

Transferred out (800 X \$31.00)		\$24,800
Work in process, September 30		
Materials (300 X \$5.00)	\$1,500	
Conversion costs (180 X \$26.00)	<u>4,680</u>	<u>6,180</u>
Total costs		<u>\$30,980</u>

*(\$3,960 + \$12,000 + \$9,520)

***EXERCISE 3-16**

(a)	Physical Units	Equivalent Units	
		Materials	Conversion Costs
Applications completed:			
Work in process, September 1	100	0	60
Started and completed	700	700	700
Work in process, September 30	<u>300</u>	<u>300</u>	<u>180</u>
Total units	<u>1,100</u>	<u>1,000</u>	<u>940</u>

(b)

Materials: $\$4,500 \div 1,000 = \4.50

Conversion costs: $\$21,620^* \div 940 = \23.00

* $(\$12,000 + \$9,620)$

Costs accounted for:

Applications completed:

Work in process, September 1	\$4,960		
Conversion costs (60 x \$23.00)	<u>1,380</u>	\$ 6,340	
Started and completed (700 x \$27.50)		<u>19,250</u>	\$25,590

Work in process, September 30:

Materials (300 x \$4.50)		1,350	
Conversion costs (180 x \$23.00)		<u>4,140</u>	<u>5,490</u>

Total costs \$31,080*

*Total costs to be accounted for: $\$1,000 + \$3,960 + \$4,500 + \$12,000 + \$9,620 = \$31,080$

***EXERCISE 3-17**

(a) (1) Materials:

<u>Production Data</u>	<u>Physical Units</u>	<u>Materials Added This Period</u>	<u>Equivalent Units</u>
Work in process, August 1	0	0	0
Started and completed	10,000	100%	10,000
Work in process, August 31	<u>2,000</u>	100%	<u>2,000</u>
Total	<u>12,000</u>		<u>12,000</u>

(2) Conversion Costs:

<u>Production Data</u>	<u>Physical Units</u>	<u>Work Added This Period</u>	<u>Equivalent Units</u>
Work in process, August 1	0	0	0
Started and completed	10,000	100%	10,000
Work in process, August 31	<u>2,000</u>	40%	<u>800</u>
Total	<u>12,000</u>		<u>10,800</u>

(b) Unit costs are:

Materials	$\$45,000 \div 12,000 = \3.75
Conversion costs	$\$29,700^* \div 10,800 = \underline{2.75}$
Total	<u>$\\$6.50$</u>

*\$13,600 + \$16,100

<u>Costs to Be Assigned</u>	<u>Assignment of Costs</u>	<u>Equivalent Units</u>	<u>Unit Cost</u>	<u>Total Costs Assigned</u>
Total mfg. costs	<u>Transferred out</u>			
	Work in process, August 1	0	\$ 0	\$ 0
\$74,700 (1)	Started and completed	10,000	\$6.50	<u>65,000</u>
	<u>Work in process, August 31</u>			
	Materials	2,000	\$3.75	\$ 7,500
	Conversion costs	800	\$2.75	<u>2,200</u>
				<u>9,700</u>
				<u><u>\$74,700</u></u>

(1) \$45,000 + \$13,600 + \$16,100.

***EXERCISE 3-18**

(a) (1)	<u>Materials</u>	<u>Physical Units</u>	<u>Materials Added This Period</u>	<u>Equivalent Units</u>
	Work in process, September 1	2,000	0%	0
	Started and completed	9,000	100%	9,000
	Work in process, September 30	<u>1,000</u>	100%	<u>1,000</u>
	Total	<u>12,000</u>		<u>10,000</u>

(2)	<u>Conversion Costs</u>	<u>Physical Units</u>	<u>Work Added This Period</u>	<u>Equivalent Units</u>
	Work in process, September 1	2,000	80%	1,600
	Started and completed	9,000	100%	9,000
	Work in process, September 30	<u>1,000</u>	40%	<u>400</u>
	Total	<u>12,000</u>		<u>11,000</u>

(b) Materials	\$ 60,000 ÷ 10,000 = \$ 6
Conversion costs	\$132,000 ÷ 11,000 = <u>12</u> <u>\$18</u>

(c)	<u>Costs to Be Assigned</u>	<u>Assignment of Costs</u>	<u>Equivalent Units</u>	<u>Unit Cost</u>	<u>Total Costs Assigned</u>
	Total mfg. costs	<u>Transferred out</u>			
		Work in process, 9/1	0	\$ 0	\$15,200
		Conversion costs	1,600	\$12	<u>19,200</u>
	\$207,200*	Started and completed	9,000	\$18	<u>162,000</u>
		Total costs transferred out			196,400
		<u>Work in process, 9/30</u>			
		Materials	1,000	\$ 6	\$6,000
		Conversion costs	400	\$12	<u>4,800</u>
		Total costs			<u>\$207,200</u>

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

***EXERCISE 3-19**

(a) Work in process, March 1	800
Started into production	<u>1,100</u>
Total units to be accounted for	1,900
Less: Transferred out	<u>1,500</u>
Work in process, March 31	<u>400</u>

(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>400</u>	100%	<u>400</u>
Total	<u>1,900</u>		<u>1,100</u>

Unit cost = \$6,600 ÷ 1,100 = \$6.00.

(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	<u>400</u>	40%	<u>160</u>
Total	<u>1,900</u>		<u>1,420</u>

Unit cost = \$2,400 + \$1,150 = \$3,550 ÷ 1,420 = \$2.50.

(d) In process, March 1	\$3,680
Conversion costs (560 X \$2.50)	<u>1,400</u>
Total cost.....	<u>\$5,080</u>

(e) 700 X (\$6.00 + \$2.50) = \$5,950.

(f) Materials (400 X \$6.00)	\$2,400
Conversion costs (160 X \$2.50)	<u>400</u>
Total cost of work in process, March 31	<u>\$2,800</u>

***EXERCISE 3-20**

MAJESTIC COMPANY
Welding Department
Production Cost Report
For the Month Ended February 28, 2017

<u>Quantities</u>	<u>Physical Units</u> (Step 1)	<u>Equivalent Units</u>	
		<u>Materials</u>	<u>Conversion Costs</u> (Step 2)
<u>Units to be accounted for</u>			
Work in process, February 1	15,000		
Started into production	<u>64,000</u>		
Total units	<u>79,000</u>		
<u>Units accounted for</u>			
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	<u>54,000</u>	<u>39,000</u>	<u>52,500</u>
Work in process, February 28	<u>25,000</u>	<u>25,000</u>	<u>5,000 (25,000 X 20%)</u>
Total units	<u>79,000</u>	<u>64,000</u>	<u>57,500</u>

*(64,000 – 25,000)

<u>Costs</u>		<u>Materials</u>		<u>Conversion Costs</u>		<u>Total</u>
<u>Unit costs (Step 3)</u>						
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>		<u>57,500</u>		
Unit costs (a) ÷ (b)		<u>\$3.00</u>		<u>\$1.80</u>		<u>\$4.80</u>

<u>Costs to be accounted for</u>			
Work in process, February 1			\$ 32,175
Started into production			<u>295,500</u>
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)	<u>24,300</u>		
Total costs		\$ 56,475	
Units started and completed (39,000 X \$4.80)		<u>187,200</u>	
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)		<u>9,000</u>	
Total costs			<u>84,000</u>
			<u>\$327,675</u>

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

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