Chapter 7

Production Cost Estimation

Chapter Outline

- Cost Systems
- Material Cost
- Labor Cost
- Manufacturing Overhead Costs
- Job Costing in a Nonmanufacturing Company
- Process Costing Compared with Job Costing

Cost Systems

- There are **two basic systems** used by manufacturers to assign costs to their products:

Job order costing

Process costing

Process Costing

- The cost accounting system used by a company depends upon the **nature** of its products or services.
- **Process costing** is more efficient for companies that produce large quantities of **homogenous product** in a continuous process.

TOMATO PUREE/PASTE

Example

- Laura Foods produces a garlic flavored tomato sauce.
- Production of the sauce requires two major processes:

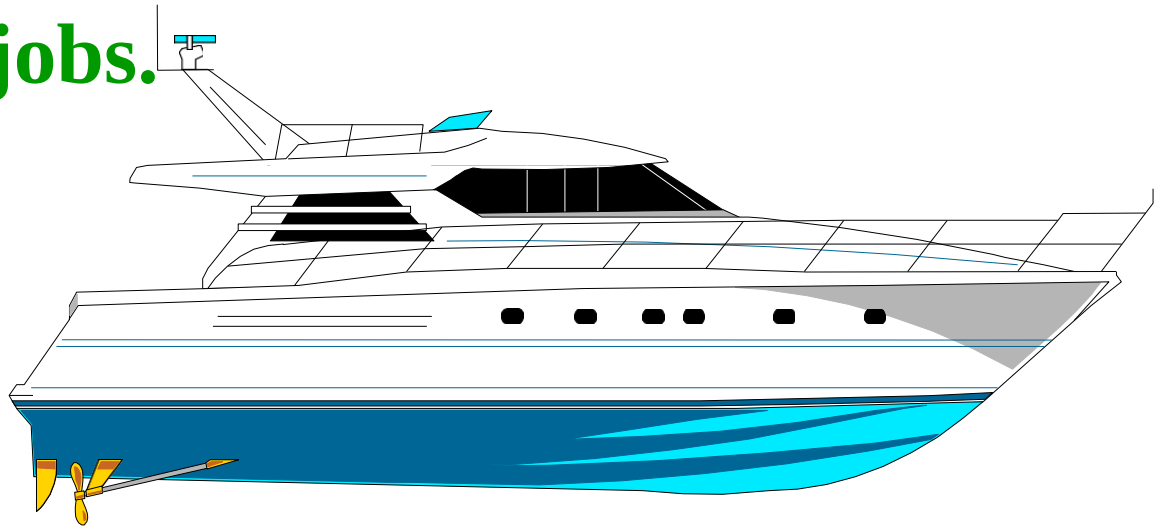
Chopping	Mixing and Canning

- Assume that Laura incurred $20,000 in the Mixing and Canning process to mix 100,000 pints of tomato sauce.
- What is the Mixing and Canning cost per pint?

$20,000 ÷ 100,000 = $0.20/pint

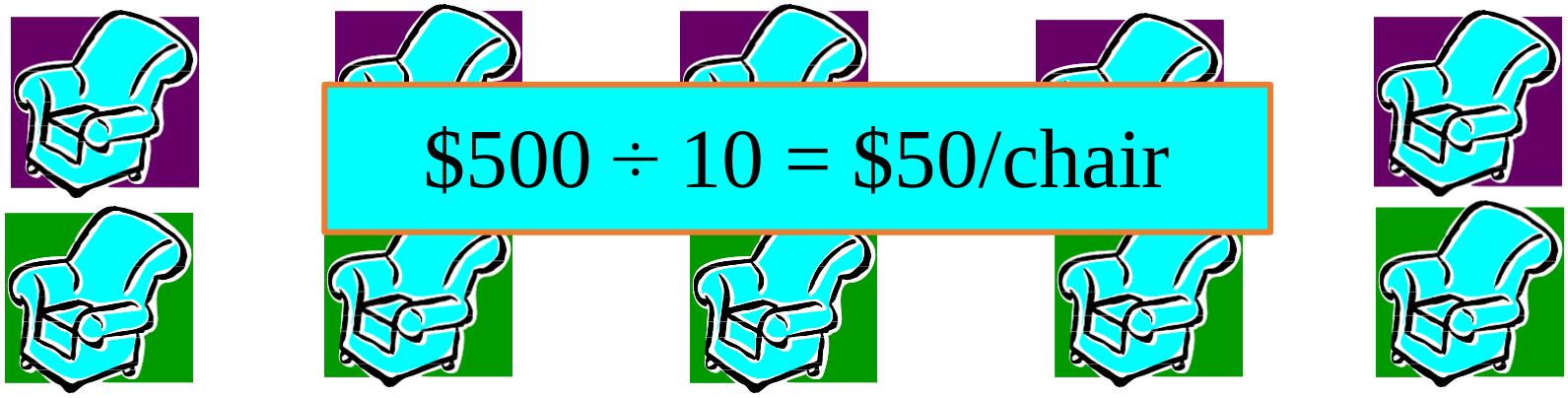
Job Costing

- **Job-order costing** allocates costs to products that are identified by individual units or batches.
- It is used by a manufacturer who produces products as **individual units** or in distinct **batches** or **jobs.**



Example

- David, Bryan, and Co. is a small furniture manufacturing business in Texas. They received an order for 10 chairs from a customer in Kansas City. Total cost for the job was $500. How much was the cost per chair?
- **Job cost record** is a document used to accumulate the costs of a job.



Material Cost

- Companies using **job costing** often use a perpetual system to account for **direct materials.**
- A materials requisition is used to request transfer of materials to the production floor.

Example

- Alec Clothing Co. purchased raw materials on account for $15,000.
- Materials costing $10,000 were requisitioned for production.
- Of this total, $2,000 was indirect materials.

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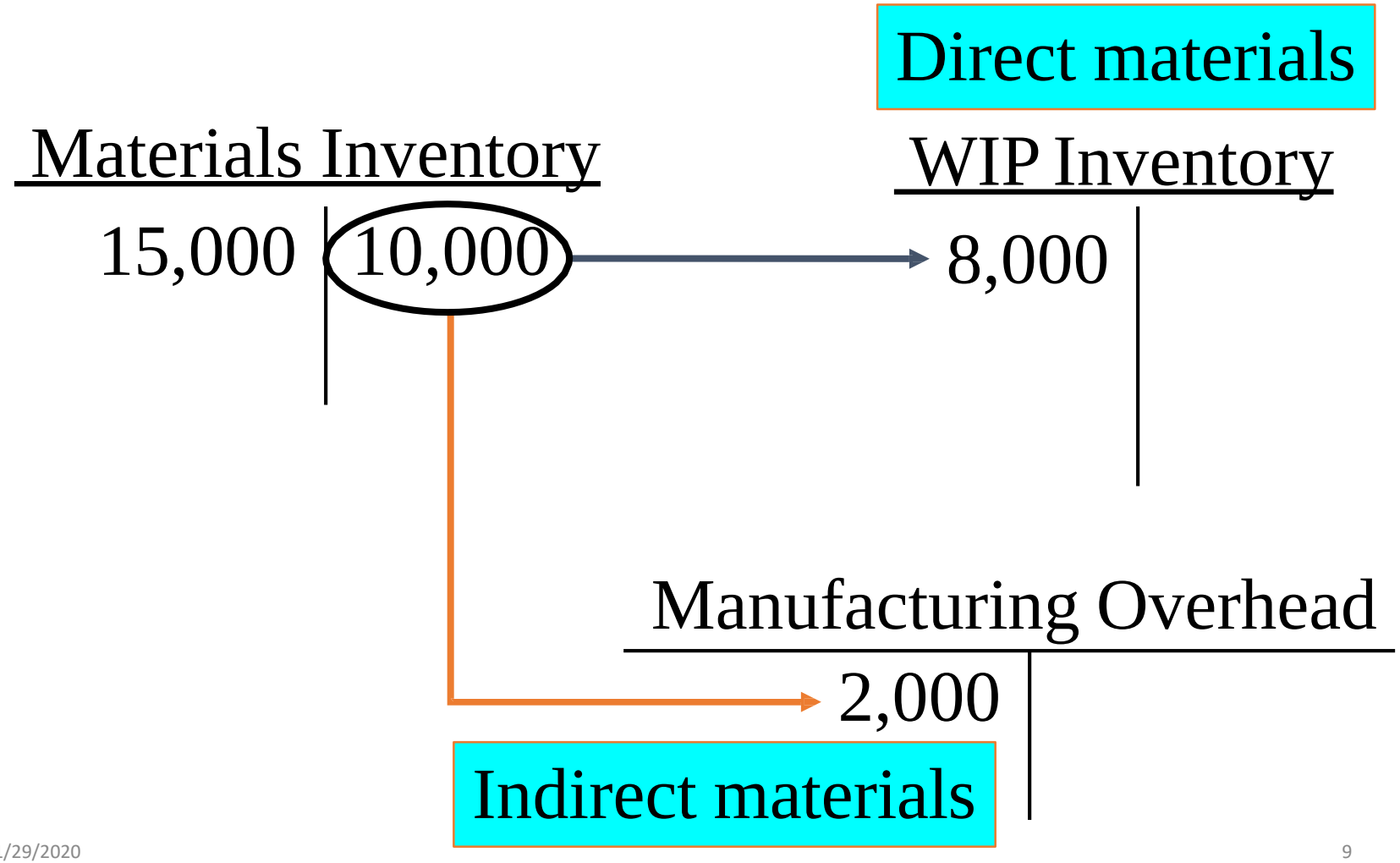
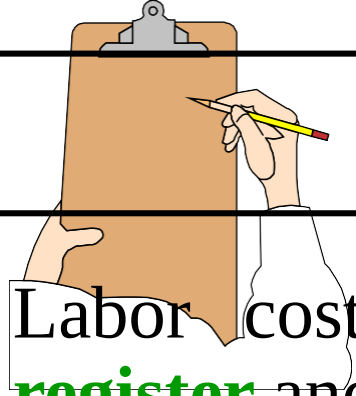

Direct materials
Materials Inventory
15,000
10,000
WIP Inventory
8,000
Manufacturing Overhead
2,000
Indirect materials



Labor Costs

- Labor costs are accumulated using the **payroll register** and **time records**.
- Labor time records identify the employee, the amount of time spent, and the cost charged to each job.

Example

- The company incurred $30,000 of manufacturing wages for all jobs.
- Assume that $25,000 can be traced directly to the jobs and $5,000 is for indirect labor.

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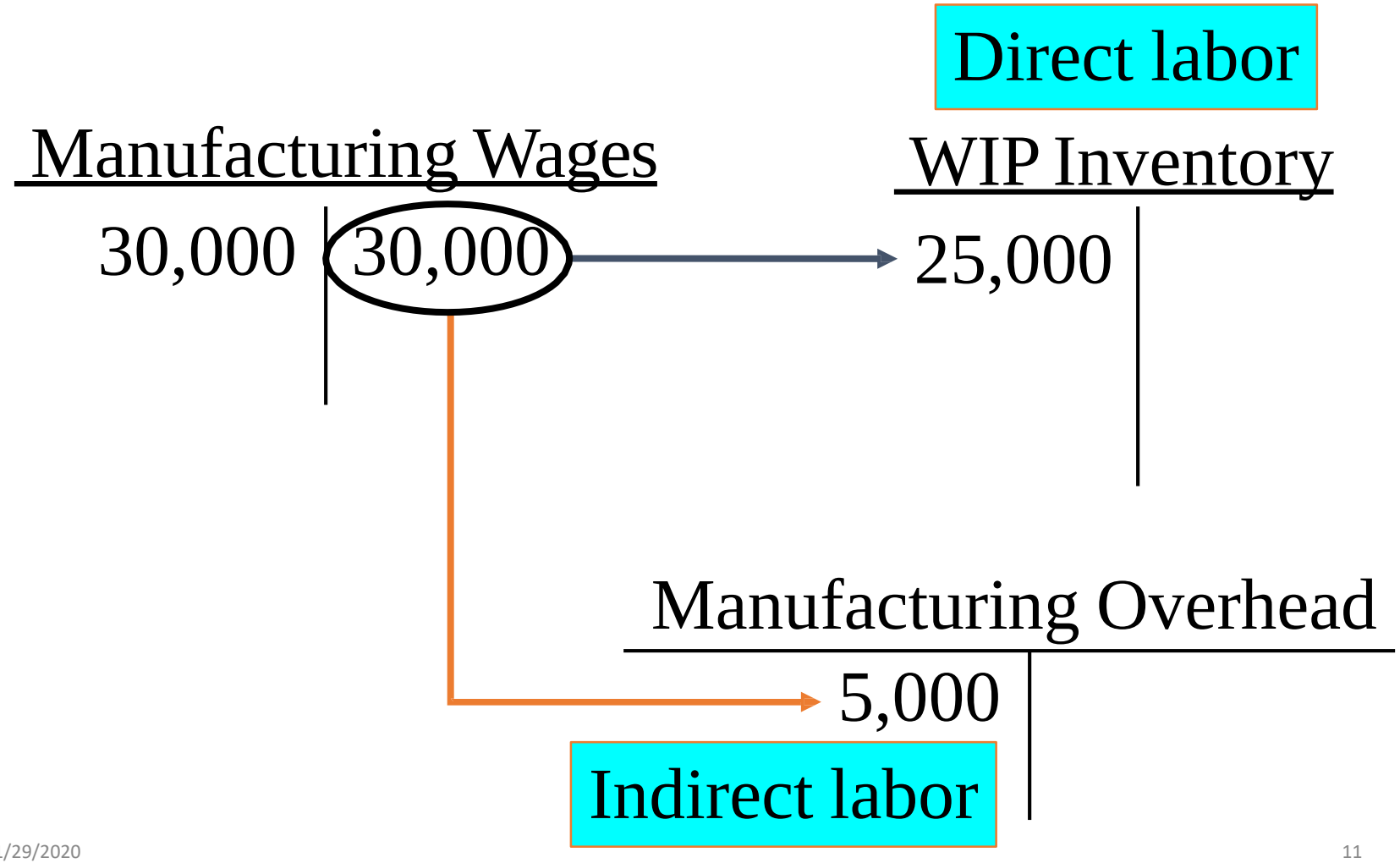

Direct labor
Manufacturing Wages
30,000
30,000
WIP Inventory
25,000
Manufacturing Overhead
5,000
Indirect labor

Manufacturing Overhead Costs

- The company incurred $20,000 of plant equipment depreciation.

Manufacturing Overhead		
(Deprec.-Plant and Equipment)	20,000	
Accumulated Depreciation		
(Plant and Equipment)		20,000
To record plant and equipment depreciation		

Manufacturing Overhead Rate

- At the beginning of the year, a predetermined manufacturing overhead application rate is computed.
- This rate is used to apply overhead to all jobs completed during the year.

Estimated overhead ÷ Estimated base = Rate

Allocating Manufacturing Overhead Cost

There are **six steps** in allocating manufacturing overhead cost

1. Estimate **total overhead** for the period.
2. Select an overhead **allocation base**.
3. Estimate **total quantity** of the overhead allocation base.
4. Compute the predetermined **overhead rate**.
5. Obtain **actual quantities** of the overhead allocation base.
6. Allocate manufacturing overhead by multiplying the predetermined manufacturing overhead rate by the actual quantity of the allocation base that pertains to each job.

Example

- Alec Clothing Co.'s total estimated overhead for the year equals $243,000.The predetermined overhead rate is based on 4,500 direct labor hours. What is the predetermined overhead rate?

$243,000 ÷ 4,500 = $54

Accounting for Finished Goods, Sales, and Cost of Goods Sold

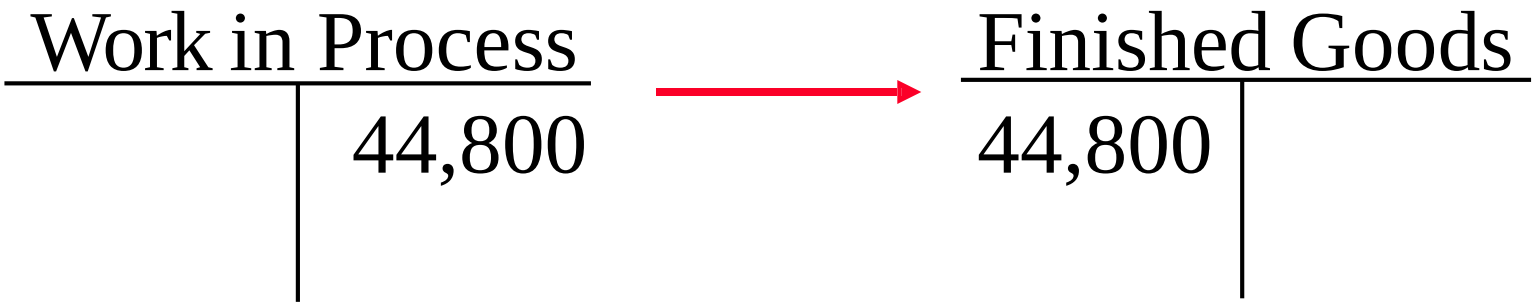
- As **jobs are completed** they are transferred to **finished goods inventory**.
- Assume that Job 51 used 200 direct labor hours.
- The **journal entry** of manufacturing overhead for Job 51 is

Work-in-Process Inventory	10,800	
Manufacturing Overhead		10,800
To record overhead applied to Job 51		

Cont'd

- In addition to the overhead applied to Job 51, direct labor was $4,000 and direct materials totaled $30,000.
- How much was transferred to Finished Goods Inventory?

Direct materials	**$30,000**
Direct labor	**4,000**
Manufacturing overhead	**10,800**
	$44,800



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- Assume that Job 51 was sold for $74,800.
- What are the journal entries?

Accounts Receivable	74,800	
Sales Revenue		74,800
Cost of Goods Sold	44,800	
Finished Goods Inventory		44,800
To record sale of Job 51		

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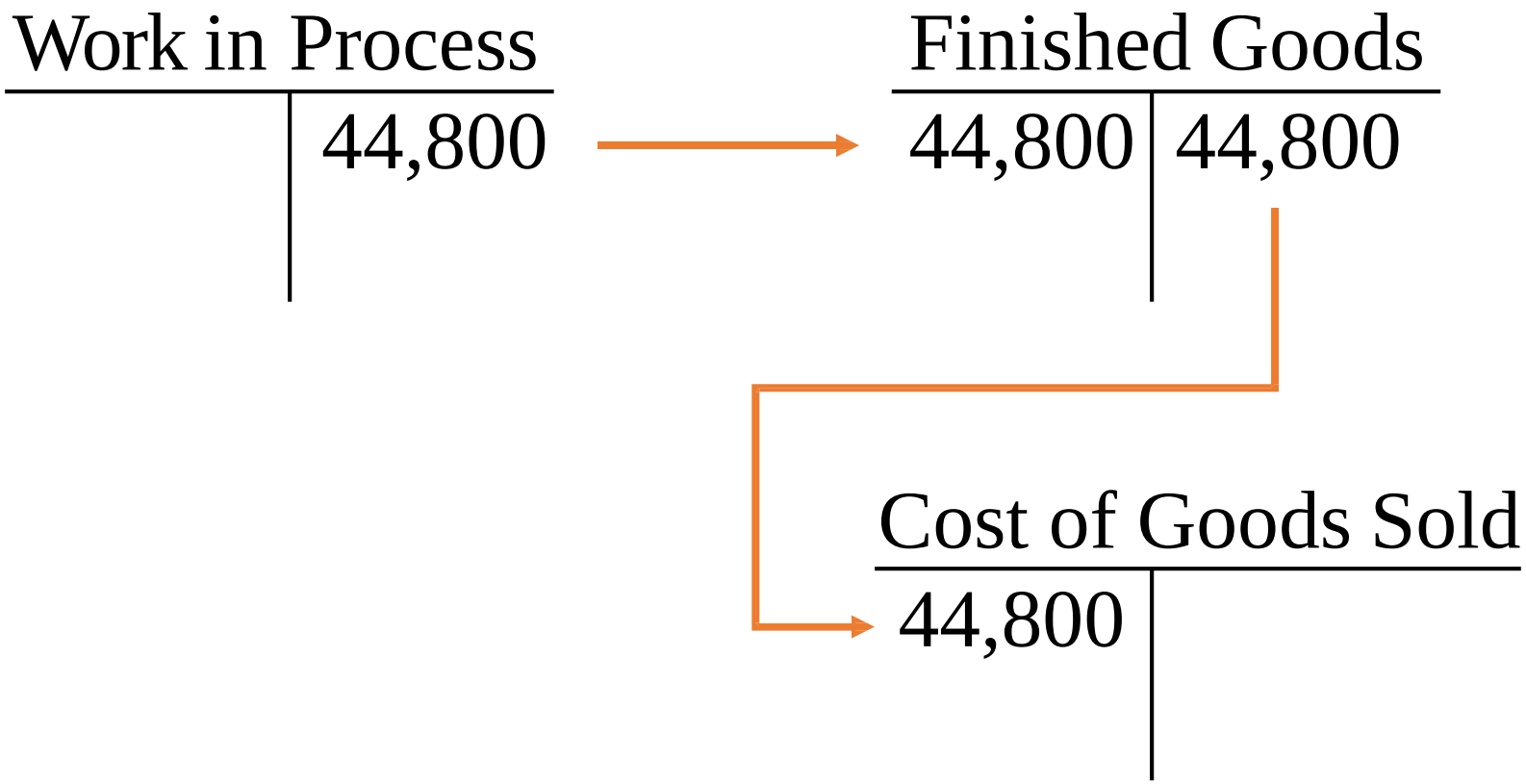
Work in Process
44,800
Finished Goods
44,800
44,800
Cost of Goods Sold
44,800

Job Costing in a Nonmanufacturing Company

- How is **direct labor** traced to individual jobs in a nonmanufacturing company?
- Employees complete a weekly time record.
- Jim, Abby, and Associates is a firm specializing in composing and arranging music parts for different clients.
- Musician Judy Lopez's salary is $80,000 per year.
- Assuming a 40-hour workweek and 50 workweeks in each year gives a total of 2,000 available working hours per year (40 hours × 50 weeks).
- What is her hourly rate?

Cont'd

- Jim and Abby estimated the indirect costs that will be incurred in 2006.

Advertising	$ 15,000
Depreciation	6,000
Maintenance	12,000
Office rent	60,000
Office support	47,000
Travel	20,000
Total indirect costs	$160,000

Process Costing Compared With Job Costing

The **journal entries** for process-costing systems are **similar** to those for the job-order system.

However

Job-costing has **one WIP** account. Process costing requires **one WIP account for each** process.

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Process-costing **does not** distinguish among individual units of product.

It accumulates **costs for a period** and divides them by quantities produced during the period to get broad, average unit costs.

Process costing can be applied to **non-manufacturing** and manufacturing activities.