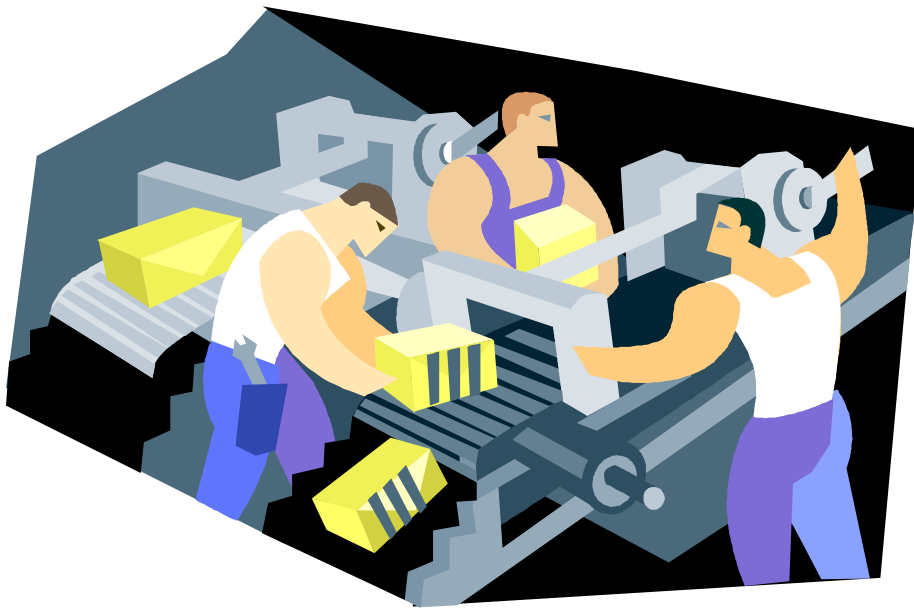


# Production & Inventory Control =Coordination





# Production Control Activities

1. Routing
2. Master Production Scheduling (MPS)
3. Dispatching
4. Follow-up or Expediting

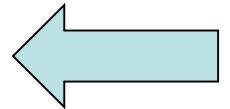
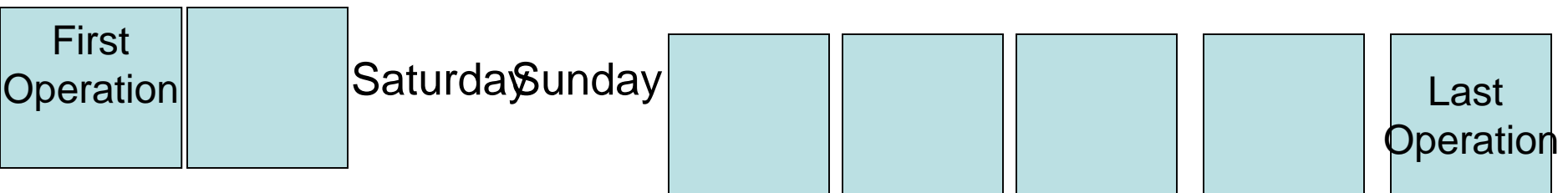


# MPS

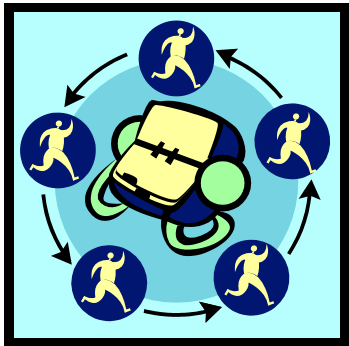
- Backward Scheduling
- Forward Scheduling
- Infinite Capacity
- Finite Capacity



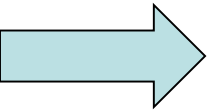
# Backward Scheduling



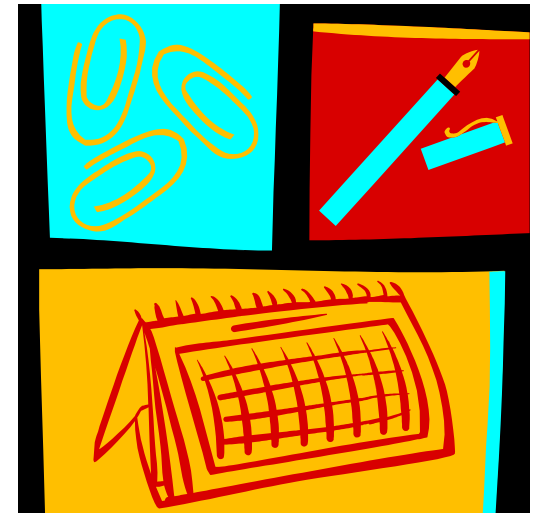
Backward from the Due Date



# Forward Scheduling

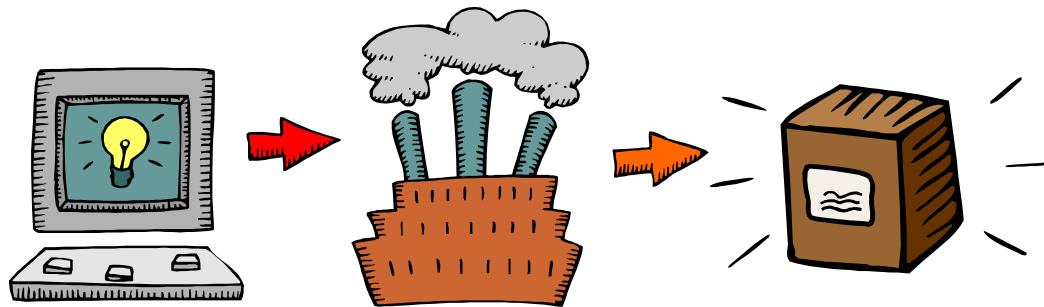


Forward from Start Date



# Infinite vs. Finite Scheduling

- Infinite Capacity Assumes Sufficient Capacity
- Finite Capacity Recognizes Capacity Limitations



# MRP - Material Requirements Planning Assumptions

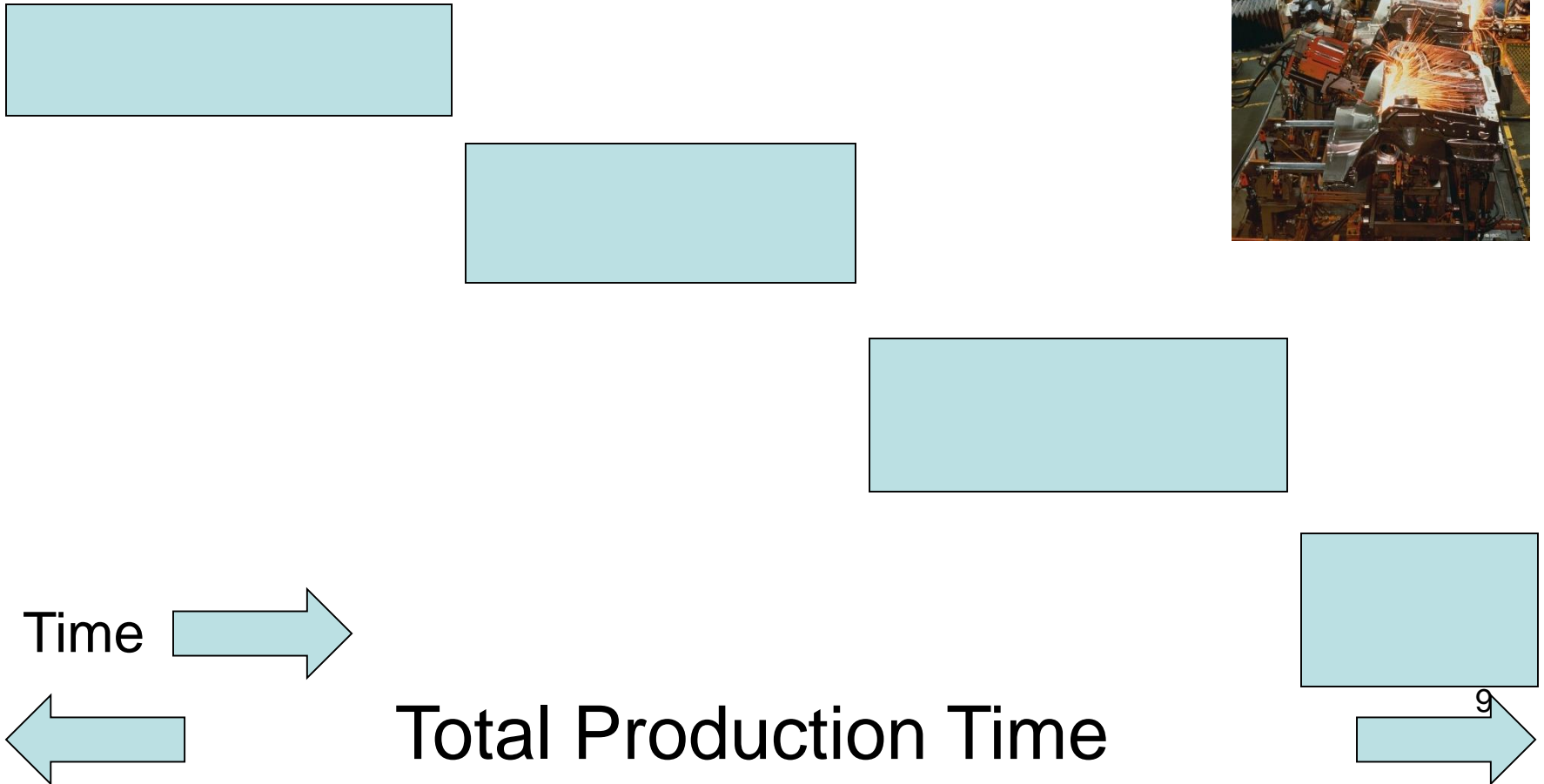
- Infinite Capacity
- Fixed Lead Time
- Batches Move in Full





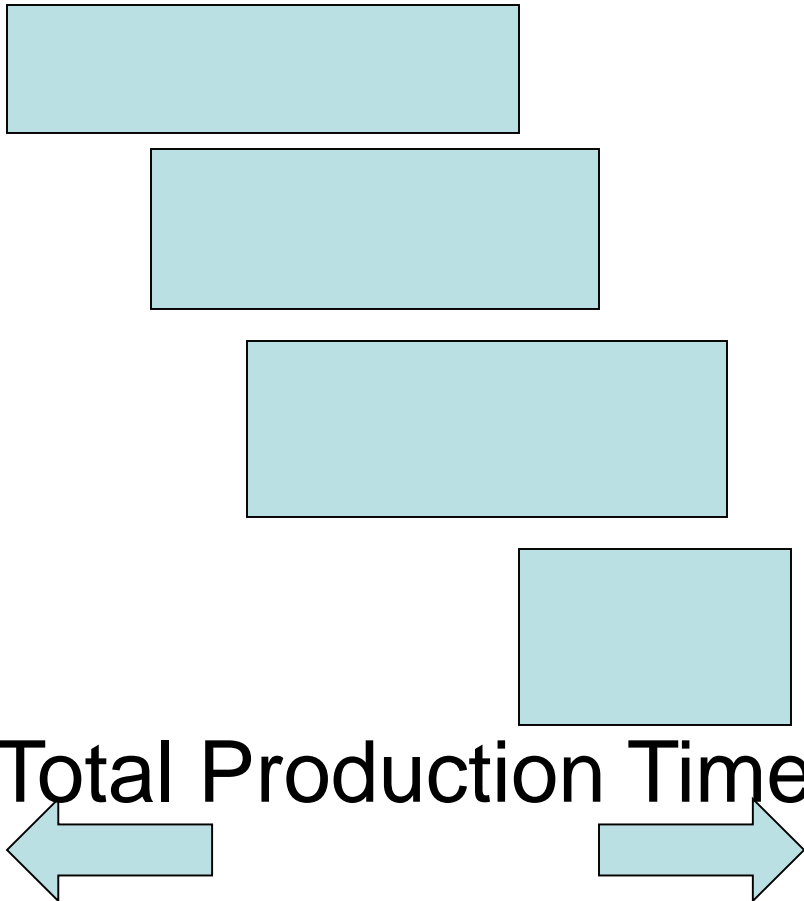
# Full Batches vs. Splitting & Overlapping Batches

- Full Batches



# Full Batches vs. Splitting & Overlapping Batches

- Splitting & Overlapping Batches



# Two Major Functions Production Control Department

1. Master Production Scheduling (MPS)
2. Planning



# Marketing

- Promises Production Cannot Meet
- Customers Change Their Minds



# Design Engineering

- Product Design Changes



# Human Resources

- Communicate Personnel Needs To HR Department

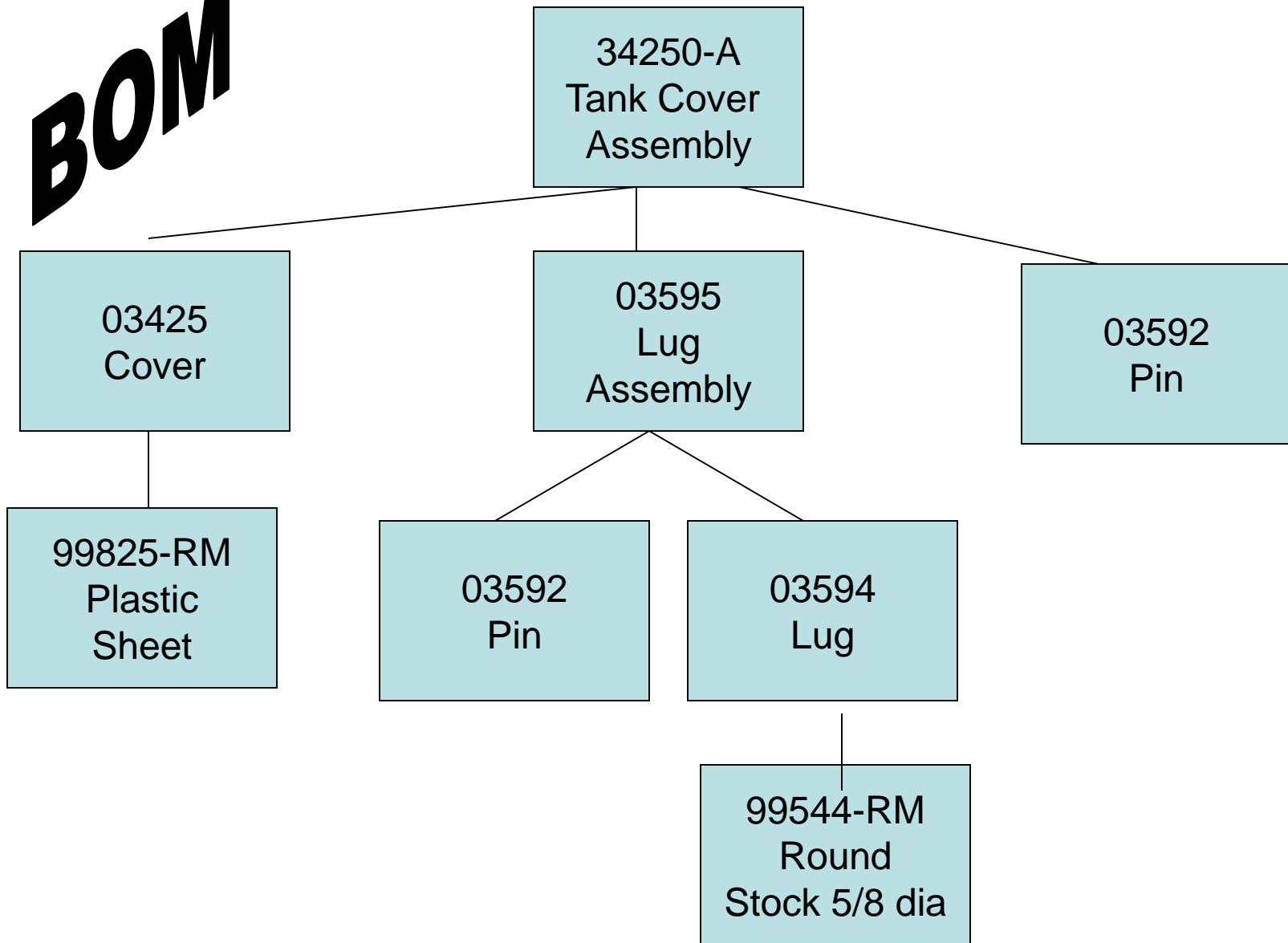


# Purchasing

- Communicate Material Needs to Purchasing
- What?
- How Many?
- When?



# BOM



**Graphic representation of bill-of-materials for tank cover assembly.**  
**Bill-of Materials(BOM) are also called product structure, and tree diagrams.**<sup>16</sup>



XYZ Mfg. Co

Indented Bill of Materials

Date XX/XX/XX

Page XXX

Time XX.XX.XX

Program XXXXXXXX

Parent Item No

Description Tank Cover Assembly

Item Type 1 UM EA

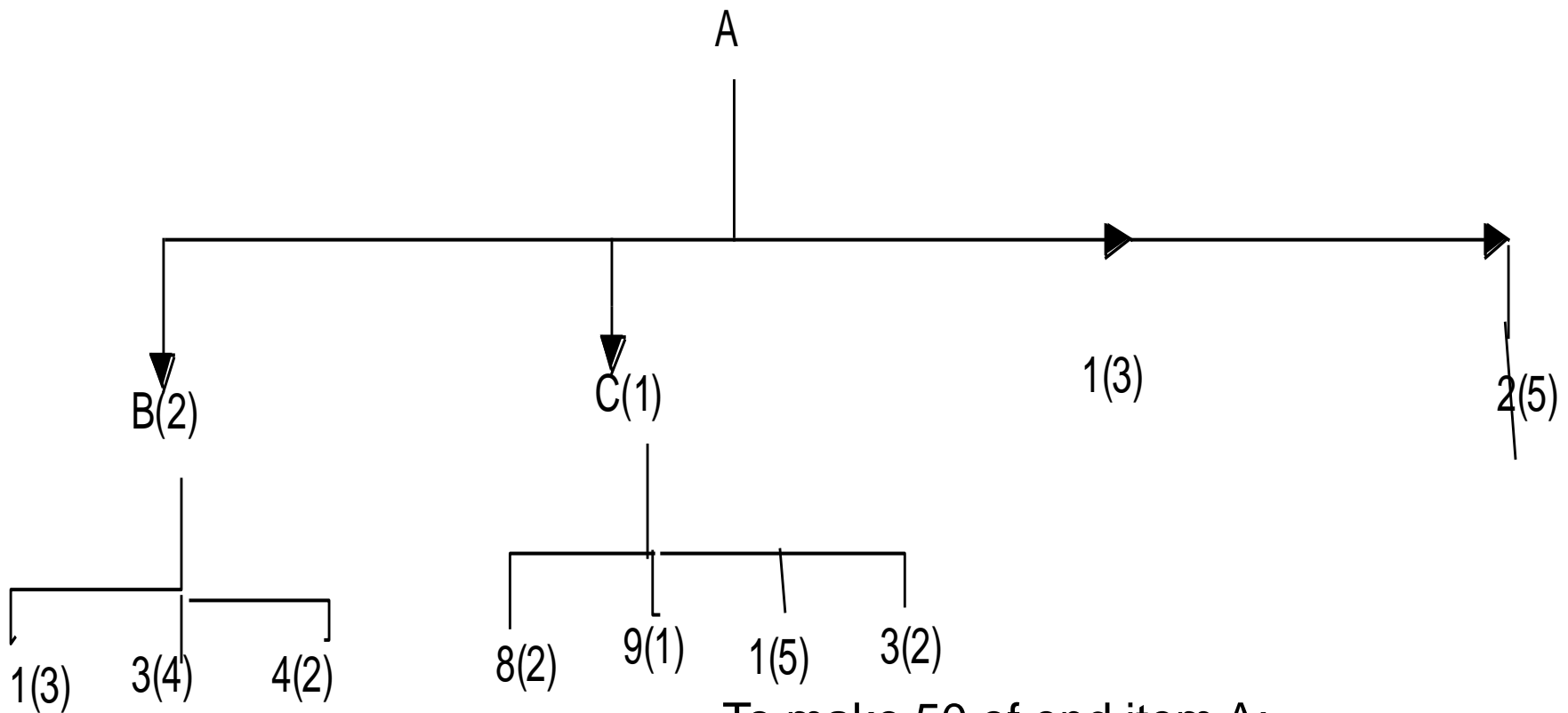
34250-A

Eng. Drawing XXXXXXXXXXXX

Eff. Date XX/XX/XX Planner XX

Relative	Component	Engineering	Qty Per	UM	Item Type
Level	Item No.	Description	Draw. Num.		
1	03425	Cover	XXXXXXX	1	EA 2
2	99825-RM	Plastic Sheet		1	SF 1
1	03592	Pin		2	EA 4
1	03595	Lug Assembly	XXXXXXX	1	EA 1
2	03592	Pin		1	EA 1
2	03594	Lug	XXXXXXX	1	EA 2
3	99544-RM	Round Stock 5/8 dia		.50	FT 3



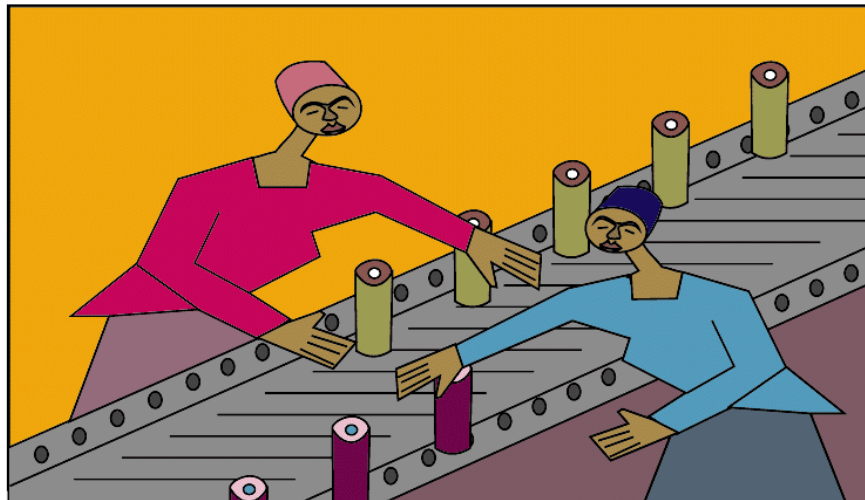


To make 50 of end item A:

Qty	Product	Calculation
100	B	$(50 \times 2)$
50	C	$(50 \times 1)$
700	1	$(100 \times 3) + (50 \times 5) + (50 \times 3)$
250	2	$(50 \times 5)$
500	3	$(100 \times 4) + (50 \times 2)$
200	4	$(100 \times 2)$
100	8	$(50 \times 2)$
50	9	$(50 \times 1)$

# Demand

- Independent Finished Products
- Dependent (or derived) sub-assemblies, components, raw material



# Classification of Inventory

1. Raw Material
2. Work in Process (WIP)
3. Finished Products



# Desired Level of Inventory

- Varies
- Finished Goods?
- Raw Material?
- Work-In-Process?



# Another Classification of Inventory

- \$ Usage
- Based on the Pareto Principle
- ABC classification

Vilfredo Pareto

**Vilfredo Pareto, 1848-1923**



% \$ usage

100

90

60

30

10

30

60

A

B

C

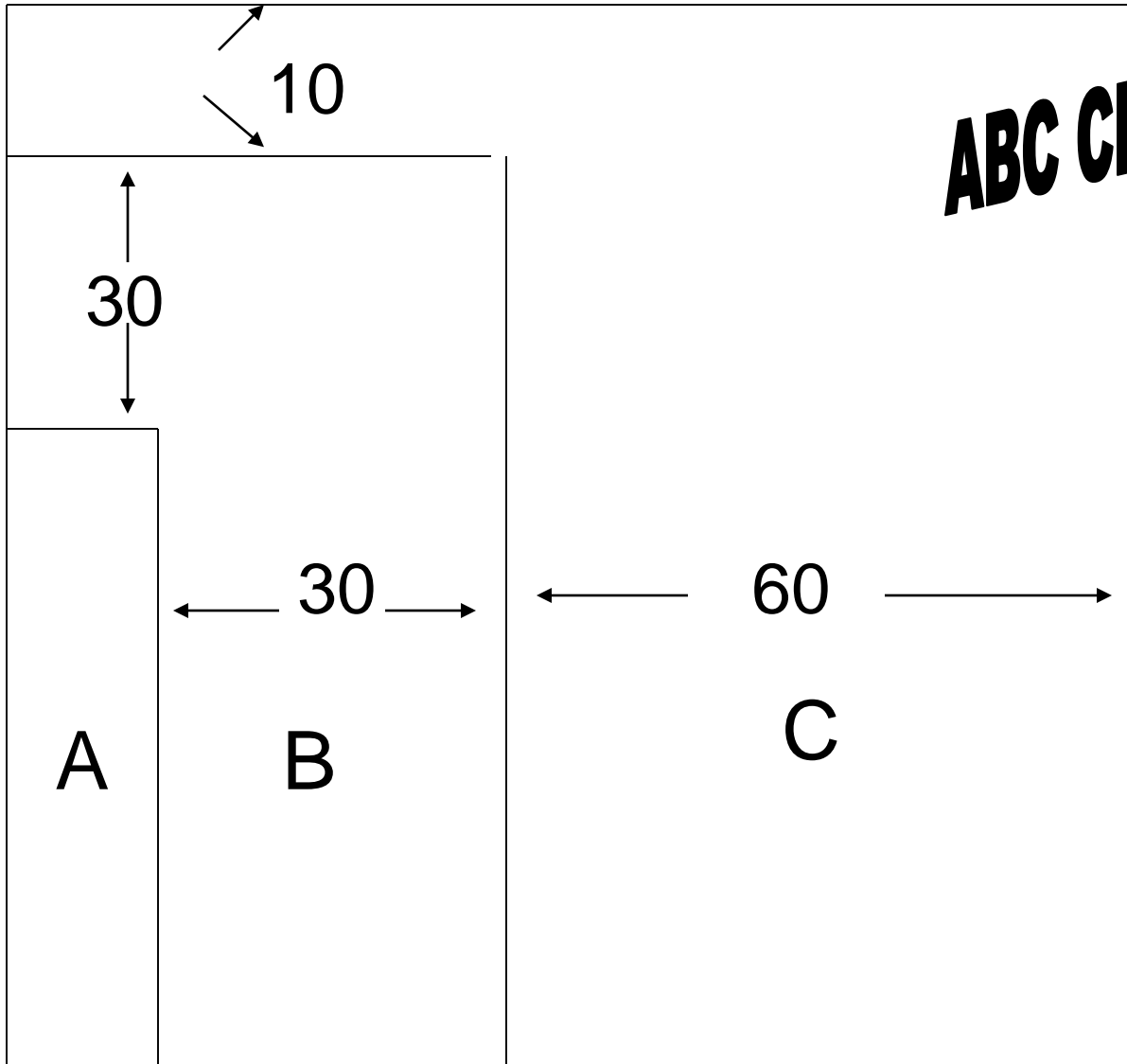
**ABC Classification**

10

40

100

% total inventory items



# Inventory Counting

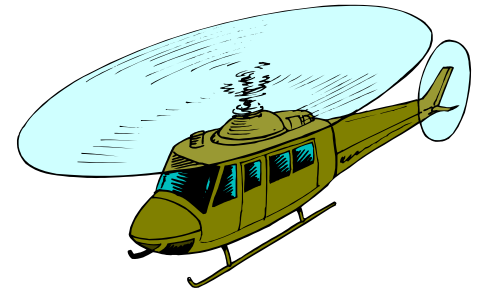


- Physical Inventory
  - Close the Facility and Count All Inventory
  - Reconcile the Actual Count with the Computer
- Cycle Count
  - Do Not Close the Facility
  - Count a Small Number of Items Frequently
  - Throughout the Year
  - Smaller Version of the Physical Inventory
  - Reconcile the Actual Count with the Computer
  - Count the More Important Items
- Shrinkage    When the Actual Count < Computer Count
- Floor Stock



# Inventory Shrinkage

- **\$1 trillion missing**
- A GAO report found Defense
- inventory systems so lax
- that the U.S. Army
- lost track of
- 56 airplanes
- 32 tanks
- 36 Javelin missile command launch-units



# Inventory Cost

- Product Cost
- Order Cost (Cost of Procurement)
  - Transportation
- Carry (Holding) Cost
  - Storage
  - Payroll
  - Depreciation
  - Insurance
  - Taxes
  - Interest
  - Opportunity Cost



# Inventory Questions?

- Why Would a Company Switch from FIFO to LIFO Inventory Valuation?
- FIFO Oldest Items Sold First
- LIFO Newest Items Sold First
- How Would You Count Floor Stock Items Such as Nuts, Bolts, Nails, O-Rings?
- Where Would You Prefer Obsolescence To Occur?
  - Raw Materials
  - WIP
  - Finished Goods

