**Let's calculate Multifactor Productivity(MFP) for each of the week, and then Productivity Growth of week 2, 3 over week 1**

**MFP (Week 1)**

= Total Output / Multiple Inputs

= (300 units × TK 140 per unit) / [ (6 workers × 40 hrs per week × TK 12 per labor hour) + 1.2 × (6 workers × 40 hrs per week × TK 12 per labor hour) + (45 Kg × TK 3 per Kg)]

= 6.49 Tk output per Tk. input

**MFP (Week 2)**

= Total Output / Multiple Inputs

= (338 units × TK 140 per unit) / [ (7 workers × 40 hrs per week × TK 12 per labor hour) + 1.2 × (7 workers × 40 hrs per week × TK 12 per labor hour) + (46 Kg × TK 3 per Kg)]

= 6.28 Tk output per Tk. input

**MFP (Week 3)**

= Total Output  Multiple Inputs

= (322 units × TK 140 per unit) / [ (7 workers × 40 hrs per week × TK 12 per labor hour) + 1.2 × (7 workers × 40 hrs per week × TK 12 per labor hour) + (46 Kg × TK 3 per Kg)]

= 5.98 Tk output per Tk. Input

**Productivity Growth of Week 2** =

[ (Current period productivity – Previous period productivity) / Previous period productivity ] × 100 %

= [ (6.28-6.49) / 6.49] × 100%

= - 3.236%

**Productivity Growth of Week 3** =

[ (Current period productivity – Previous period productivity) / Previous period productivity ] × 100 %

= [ (5.98-6.49) / 6.49] × 100%

= - 7.858%

**Briefly highlight the key points of supply chain system of Zara. (Hint: Follow case on supply chain management)**

Zara's supply chain system is designed to maximize responsiveness, minimize lead times, and align production closely with customer demand. By integrating efficient manufacturing, inventory control, and real-time data, Zara maintains a competitive advantage in the fast-paced fashion industry. The key points of Zara's supply chain system are:

1. **Fast and Responsive Design-to-Sales Cycle**
    - Zara reduces design-to-sales cycle times to 5-6 weeks, compared to the industry average of over 6 months.
    - This allows frequent introduction of new designs, updating 75% of merchandise every 3-4 weeks.
2. **Efficient Manufacturing Strategy**
    - Uses a mix of flexible, quick sources in Europe (Portugal and Spain) and low-cost production in Asia.
    - About 40% of manufacturing is owned by Inditex, while the rest is outsourced.
    - Uncertain demand products are sourced from Europe, while predictable products come from Asia.
3. **Demand-Driven Production and Inventory Control**
    - Most finished goods purchases and in-house production occur after the sales season starts.
    - Zara delays production decisions to reduce inventory risks and forecasting errors.
4. **Advanced Information Systems**
    - Real-time sales data is used for replenishment and production decisions.
5. **Centralized and Flexible Distribution**
    - Until 2002, all European distribution was managed through a single distribution center (DC) in Spain.
    - Smaller satellite DCs serve Latin America.
    - Shipments from DCs to stores are made twice a week to align with customer demand.

This supply chain model allows Zara to be highly responsive to fashion trends while maintaining cost efficiency.

**What are the advantages of shifting inventory ownership to the suppliers? (Hint: Follow Case on inventory management)**

Shifting inventory ownership to suppliers is an increasingly popular strategy in supply chain management. By transferring the responsibility of inventory management to suppliers, businesses can enhance efficiency, reduce costs, and improve overall operational flexibility. The key advantages of this approach include:

1. **Reduced Inventory Carrying Costs**
    - Holding inventory incurs costs like storage, insurance, depreciation, and obsolescence.
    - Suppliers often manage inventory more efficiently, leading to cost savings.
2. **Improved Cash Flow**
    - Companies don't have to pay for inventory upfront, freeing up working capital for other business operations.
3. **Increased Inventory Turns & Velocity**
    - Since suppliers replenish stock based on actual usage, inventory moves faster, reducing excess stock and waste.
4. **Better Supplier Relationships**
    - Strengthening supplier partnerships can lead to better pricing, service, and reliability.
    - Encourages collaboration through vendor-managed inventory (VMI) or consignment models.
5. **More Efficient Supply Chain Management**
    - Suppliers take on responsibility for managing stock levels and replenishment, reducing the buyer's administrative burden.
    - Enables companies to focus on core business functions.
6. **Optimized Warehouse Space**
    - Less on-hand inventory means companies can repurpose storage space for other business needs.

7. **Risk Reduction**
    - Reduces the risk of holding obsolete or excess inventory, as suppliers are responsible for stock turnover.
    - Helps businesses adapt to demand fluctuations with more flexible inventory levels.
8. **Potential Cost Savings**
    - Even if suppliers charge a fee, it is often lower than the 25%-40% carrying cost of holding inventory.
    - Bulk purchasing from fewer vendors can lead to better pricing and volume discounts.

Shifting inventory ownership to suppliers is a growing trend in supply chain management, enabling businesses to focus on core operations while suppliers handle inventory logistics efficiently. This strategic approach enhances agility, reduces financial strain, and fosters stronger supplier collaboration.