|  |  |  |  |
| --- | --- | --- | --- |
|   | Doritos | Pepsi |  |
| Annual Demand | 500 | 1000 |  |
| Ordering Cost |  $ 25.00  |  $ 10.00  |  |
| Holding Cost (one unit for one year) |  $ 0.25  |  $ 0.35  |  |
| Unit Cost |  $ 1.00  |  $ 1.50  |  |
| On Hand Inventory | 25 | 15 |  |
| Lead Time (weeks) | 3 | 2 |  |
| Scheduled Receipts | 20 | 0 |  |
| Backorders | 0 | 0 |  |
| Service Level | 98% | 95% |  |
| Demand Std. Dev. (weekly) | 5 | 10 |  |
|  |  |  |  |

**1)Economic Order Quantity**

First, you decide to evaluate the economic order quantity (EOQ) approach to managing the inventory. Answer the following questions (show your work to the right if you wish to have the possibility of partial credit for your calculations). Choose the best answer from the available options.

For intermediate calculations, do not use rounded values (for example, do not use the value you entered as your answer for question 1 as an input to question 2, use the exact, calculated value instead).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Doritos | Pepsi |  |
| What is the EOQ for each item? |   |   |  |
|  |  |  |  |
| What is the time between orders (TBO) for each item if the EOQ quantity is adopted? |   |   |  |
|  |  |  |  |
| What is the total annual cycle-inventory cost associated with each product? |   |   |  |
|  |  |  |  |
|  |  |  |  |

**2) Continuous Review**

Next, you evaluate the continuous review inventory control method. Complete the following questions, again, show your work to the right if you wish it to be considered for partial credit. Choose the best answer from the available options.

For intermediate calculations, do not use rounded values (for example, do not use the value you entered as your answer for question 1 as an input to question 2, use the exact, calculated value instead).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Doritos | Pepsi |  |
| 1. What is the standard deviation of demand during the lead time? |   |   |  |
|  |  |  |  |
| 2. What is the reorder point (R) for each item? |   |   |  |
|  |  |  |  |
| 3. If the standard deviation during the lead time could be reduced to |  |  |  |
| one-half its present value, what would the new reorder point (R) be? |   |   |  |
|  |  |  |  |

**3) Periodic Review**

Evaluate the periodic review inventory control technique. Answer the questions below (as before, if you wish your work to be considered for partial credit, show your work to the right of this area. Assume that when you place an order you will order the quantity you determined in Part A (the EOQ). Choose the best answer from the available options.

For intermediate calculations, do not use rounded values (for example, do not use the value you entered as your answer for question 1 as an input to question 2, use the exact, calculated value instead).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Doritos | Pepsi |  |
| What is the protection interval (P+L) for each item? |   |   |  |
|  |  |  |  |
| What is the target inventory level (T) for each item? |   |   |  |
|  |  |  |  |
| Over 100 order cycles, how many would you expect |  |  |  |
| to end with an inventory shortage? |   |   |  |
|  |  |  |  |
|  |  |  |  |
| 4)

|  |  |  |  |
| --- | --- | --- | --- |
| **Inventory Position/Recommendation** |  |  |  |
|  | Doritos | Pepsi |  |
| What is the current inventory position for each item? |   |   |  |
|  |  |  |  |

 |  |  |  |

Of the three options (EOQ, continuous review, and periodic review), which inventory control technique would you recommend for your employer? Why? **Be sure to consider not only the cost of the system but also the complexity of implementation and any assumptions that we have made (or that are implied by the model being discussed) and list these considerations in your response.**