**INVENTORY MANAGEMENT**

**PRACTICE CHAPTER 4**

**Problem 1:**

Monthly demand for Toy models at a Best Buy Store is normally distributed, with a mean of 35 units and a standard deviation of 10 units. If backorder occurs, the store must pay $65 for each toy model instead of $40. Assume that the carrying rate r = 35% per month.

Calculate the base stock level?

h = 40\*0.35 = 14

b = 25

G(R) = 25/(25+14) = 0.6410

🡪 Z = 0.36 🡪 R\* = 39

**Problem 2:**

A toy model has an average demand rate that does not change with time. Suppose that demands in consecutive weeks can be considered as independent, normally distributed variables. Observations of total demand in each of 10 weeks are as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Week | Demand | Week | Demand |
| 1 | 39 | 6 | 16 |
| 2 | 52 | 7 | 28 |
| 3 | 57 | 8 | 43 |
| 4 | 26 | 9 | 32 |
| 5 | 38 | 10 | 69 |

Estimate the mean and standard deviation of demand in a 1-week period and establish the reorder point in this case. Cost per stockout (lost sale) is $100, and we have *Q* = 400 units,. Assume that a year has 50 weeks, and the lead time is a week. The carrying rate r =0.24 $/$/year.

Conclusion: Annual demand is 2,000 units.

We have:

Then

**Problem 3:**

Consider an item with *A* = $25; *Dv* = $4,000*/*year; σ*Lv* = $100; *B*1 = $30; and *r* =

0.10 $/$/year. Find the following:

1. EOQ, in dollars

2. *k*, using the *B*1 criterion

3. SS, in dollars?

1. EOQ, in dollars
2. *k*, using the *B*1 criterion.

We have:

Then:

1. SS, in dollars

**Problem 4:**

An ophthalmologist’s office operates 52 weeks per year, 6 days a week. It purchases disposable contact lenses for $11.70 per pair and sells them for $50. Demand is 90 pairs per week. The order cost is $54 per order. The annual interest rate is 27%. The lead-time is 3 weeks. Standard deviation of weekly demand is 15 pairs. Given that 98% service-level. Clearly identify different types of stocks: cycle, safety, and pipeline.

1. Find a (Q, r) policy for this situation

Service level = 98%

1. Find average order frequency of the policy (a)