

Inventory: Basic Models – Exercise 1

Part number xb-2 has an annual independent demand as spare parts of 4000 units, a set up cost of \$100, a carrying cost of 30 percent per year, and an item cost of \$266.67. The production facility is open five days per week, 50 weeks per year. The lead time is nine days. The standard deviation of demand is two units per day. The company wants a 95% service level for this spare part.

1. Develop a template for solving basic EOQ models (see below).
2. Calculate the P review period and target inventory level (T) based on the concepts in the class notes.
3. Develop a graph/data table examining the sensitivity of safety stock and inventory investment (see notes) to $\pm 10\%$, 20% and 30% changes in standard deviation of demand during lead time.

	A	B	
1	Independent Demand		
2	Inventory Model		
3			
4	Input Section		
5	Annual Sales or Demand (D)		
6	Ordering Cost (S)		
7	Carrying Cost (%) (I)		
8	Item Cost C		
9	Std Deviation (sigma for one day)		
10	Working Days per Year		
11	Lead Time (days) (L)		
12	Desired Service Level (%)		
13			
14			
15	Output Section: Q System		
16	Daily Demand		
17	EOQ (Order this amount) (Q)		
18	Annual Cost		
19	Demand during lead time (m)		
20	z value (use function)		
21	sigma _{during lead time}		
22	Safety stock required (z*sigma _{during lead time})		
23	Reorder Point (When to order) R		
24	Order Every (time periods) (Q/D)		
25			
26	Output Section: P System		
27	Review Stock Every (P)		
28	Order up to Target Inventory Level (T)		