

lecture example one

(a) 500 units

$$\begin{aligned}\text{order quantity} &= \underline{500 \text{ units}} \\ \text{Number of orders} &= \text{demand for desks} \div \text{order quantity} = 40,000 \div 500 = \underline{80} \\ \text{Average stock} &= \text{order quantity} \div 2 = 500 \div 2 = \underline{250} \\ \text{Reorder cost per annum} &= \text{number of orders} \times \text{cost of reordering} = 80 \times 20 = \underline{\$1,600} \\ \text{Stock holding cost p.a.} &= \text{average stock} \times \text{cost of each desk} = 250 \times 25 = \underline{\$625} \\ &\quad \text{10\% (10\% of inventory value)} \\ \text{Total Stock Cost p.a.} &= \text{reorder cost p.a.} + \text{stock holding cost p.a.} = 1,600 + 625 = \underline{\$2,225}\end{aligned}$$

(b) 750 units

$$\begin{aligned}\text{order quantity} &= \underline{750 \text{ units}} \\ \text{Number of orders} &= \text{demand for desks} \div \text{order quantity} = 40,000 \div 750 = \underline{53.33} \\ \text{Average stock} &= \text{order quantity} \div 2 = 750 \div 2 = \underline{375} \\ \text{Reorder cost per annum} &= \text{Number of orders} \times \text{cost of reordering} = 53.34 \times 20 = \underline{1,067} \\ \text{Stock holding cost p.a.} &= \text{average stock} \times \text{cost of each desk} = \underline{375 \times 25 = 938} \\ &\quad \text{10\% (10\% of inventory value)} \\ \text{Total Stock Cost p.a.} &= \text{reorder cost p.a.} + \text{stock holding cost p.a.} = \underline{\$2,005}\end{aligned}$$

(c) 1000 units

$$\begin{aligned}\text{order quantity} &= \underline{1000 \text{ units}} \\ \text{Number of orders} &= \text{demand for desks} \div \text{order quantity} = 40,000 \div 1000 = \underline{40} \\ \text{Average stock} &= \text{order quantity} \div 2 = 1,000 \div 2 = \underline{500} \\ \text{Reorder cost per annum} &= \text{number of orders} \times \text{cost of reordering} = 40 \times 20 = \underline{800} \\ \text{Stock holding p.a.} &= \text{average stock} \times \text{cost of each desk} = \underline{500 \times 25 = 1,250} \\ &\quad \text{10\% (10\% of inventory value)} \\ \text{Total Stock Cost p.a.} &= \text{reorder cost p.a.} + \text{stock holding cost p.a.} = 800 + 1,250 = \underline{2,050}\end{aligned}$$

(d) 1250 units

$$\begin{aligned}\text{Order quantity} &= \underline{1,250 \text{ units}} \\ \text{Number of orders} &= \text{demand for desks} \div \text{order quantity} = 40,000 \div 1,250 = \underline{32} \\ \text{Average stock} &= \text{order quantity} \div 2 = 1,250 \div 2 = \underline{625} \\ \text{Reorder cost per annum} &= \text{number of orders} \times \text{cost of reordering} = 32 \times 20 = \underline{640} \\ \text{Stock holding p.a.} &= \text{average stock} \times \text{cost of each desk} = \underline{625 \times 25 = 1,563} \\ &\quad \text{10\% (10\% of inventory value)} \\ \text{Total stock cost p.a.} &= \text{reorder cost p.a.} + \text{stock holding p.a.} = 640 + 1,563 = \underline{\$2,203}\end{aligned}$$

<u>order quantity</u>	<u>Number of orders</u>	<u>Average Stock</u>	<u>Reorder Cost p.a.</u>	<u>Stock holding cost p.a.</u>	<u>Total Stock Cost p.a.</u>
800	80	250	1,600	625	2,225
750	53.33	375	1,067	938	2,005
1000	40	500	800	1,250	2,050
1250	32	625	640	1,563	2,203