

BN Bookstore

Regular Price: \$ 30.00
Sale Price: \$ 10.00

Demand: 500 (500-4500)
Order: 500

Surplus: 0 =MAX(B10-B9,0)
Way #2: 0 =IF(B9>B10,0,B10-B9)

Costs: \$ 12,000 =VLOOKUP(B10,E4:F9,2,TRUE)*B10

Revenue: \$ 15,000 =MIN(B9:B10)*B4+B12*B5

Profit: \$ 3,000 =B17-B15

B&N Bookstore, with many locations across the United States, places orders for all the latest books and then distributes them to its individual bookstores. B&N needs a model to help it order the appropriate number of any title. For example, B&N plans to order a popular new hardback novel, which it will sell for \$30. It can purchase any number of this book from the publisher, but due to quantity discounts, the unit cost for all books it orders depends on the number ordered. Specifically, if the number ordered is less than 1000, the unit cost is \$24. After each 1000, the unit cost drops: to \$23 for at least 1000 copies; to \$22.25 for at least 2000; to \$21.75 for at least 3000; and to \$21.30 (the lowest possible unit cost) for at least 4000. B&N is very uncertain about the demand for this book – it estimates that demand could be anywhere from 500 to 4500. Also, as with most hardback novels, this one will eventually come out in paperback. Therefore, if B&N has any hardbacks left when the paperback comes out, it will put them on sale for \$10, at which price it believes all the leftovers will be sold.

How many copies of this hardback novel should B&N order from the publisher?

at least

Ordered	Unit Cost
0	\$ 24.00
1000	\$ 23.00
2000	\$ 22.25
3000	\$ 21.75
4000	\$ 21.30

		Demand				
Order:	\$ 3,000	500	1000	1500	2000	2500
	500	\$ 3,000.00	\$ 3,000.00	\$ 3,000.00	\$ 3,000.00	\$ 3,000.00
	1000	\$ (3,000.00)	\$ 7,000.00	\$ 7,000.00	\$ 7,000.00	\$ 7,000.00
	1500	\$ (9,500.00)	\$ 500.00	\$ 10,500.00	\$ 10,500.00	\$ 10,500.00
	2000	\$ (14,500.00)	\$ (4,500.00)	\$ 5,500.00	\$ 15,500.00	\$ 15,500.00
	2500	\$ (20,625.00)	\$ (10,625.00)	\$ (625.00)	\$ 9,375.00	\$ 19,375.00
	3000	\$ (25,250.00)	\$ (15,250.00)	\$ (5,250.00)	\$ 4,750.00	\$ 14,750.00
	3500	\$ (31,125.00)	\$ (21,125.00)	\$ (11,125.00)	\$ (1,125.00)	\$ 8,875.00
	4000	\$ (35,200.00)	\$ (25,200.00)	\$ (15,200.00)	\$ (5,200.00)	\$ 4,800.00
	4500	\$ (40,850.00)	\$ (30,850.00)	\$ (20,850.00)	\$ (10,850.00)	\$ (850.00)

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3000	3500	4000	4500
\$ 3,000.00	\$ 3,000.00	\$ 3,000.00	\$ 3,000.00
\$ 7,000.00	\$ 7,000.00	\$ 7,000.00	\$ 7,000.00
\$ 10,500.00	\$ 10,500.00	\$ 10,500.00	\$ 10,500.00
\$ 15,500.00	\$ 15,500.00	\$ 15,500.00	\$ 15,500.00
\$ 19,375.00	\$ 19,375.00	\$ 19,375.00	\$ 19,375.00
\$ 24,750.00	\$ 24,750.00	\$ 24,750.00	\$ 24,750.00
\$ 18,875.00	\$ 28,875.00	\$ 28,875.00	\$ 28,875.00
\$ 14,800.00	\$ 24,800.00	\$ 34,800.00	\$ 34,800.00
\$ 9,150.00	\$ 19,150.00	\$ 29,150.00	\$ 39,150.00