|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Supply Chain Engineering IE 7200**  **Aven Samareh**  **Problem-1**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Retailer Orders 8000** | | | | |  | | **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** | | 8000 | 0.11 | 1000000 | 640000 | 360000 | 39600 | | 10000 | 0.11 | 1000000 | 640000 | 360000 | 39600 | | 12000 | 0.28 | 1000000 | 640000 | 360000 | 100800 | | 14000 | 0.22 | 1000000 | 640000 | 360000 | 79200 | | 16000 | 0.18 | 1000000 | 640000 | 360000 | 64800 | | 18000 | 0.1 | 1000000 | 640000 | 360000 | 36000 | |  |  |  |  |  | **360000** | |

|  |  |
| --- | --- |
| **Manuacturer Profit** | **100000** |
| Fixed Cost | **100000** |
| Variable Cost | **55** |
| Distributor Sales | **125** |
| Manufacturo sells | **80** |
| Retailer Order | **8000** |
| Demand | **8000** |
| Discount | **20** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 10000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1040000 | 800000 | 240000 | 26400 |
| 10000 | 0.11 | 1250000 | 800000 | 450000 | 49500 |
| 12000 | 0.28 | 1250000 | 800000 | 450000 | 126000 |
| 14000 | 0.22 | 1250000 | 800000 | 450000 | 99000 |
| 16000 | 0.18 | 1250000 | 800000 | 450000 | 81000 |
| 18000 | 0.1 | 1250000 | 800000 | 450000 | 45000 |
|  |  |  |  |  | **426900** |

|  |  |
| --- | --- |
| **Manuacturer Profit** | **150000** |
| Fixed Cost | **100000** |
| Variable Cost | **55** |
| Distributor Sales | **125** |
| Manufacturo sells | **80** |
| Retailer Order | **10000** |
| Demand | **8000** |
| Discount | **20** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 12000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1080000 | 960000 | 120000 | 13200 |
| 10000 | 0.11 | 1290000 | 960000 | 330000 | 36300 |
| 12000 | 0.28 | 1500000 | 960000 | 540000 | 151200 |
| 14000 | 0.22 | 1500000 | 960000 | 540000 | 118800 |
| 16000 | 0.18 | 1500000 | 960000 | 540000 | 97200 |
| 18000 | 0.1 | 1500000 | 960000 | 540000 | 54000 |
|  |  |  |  |  | **470700** |

|  |  |
| --- | --- |
| **Manuacturer Profit** | **200000** |
| Fixed Cost | **100000** |
| Variable Cost | **55** |
| Distributor Sales | **125** |
| Manufacturo sells | **80** |
| Retailer Order | **12000** |
| Demand | **8000** |
| Discount | **20** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 14000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1120000 | 1120000 | 0 | 0 |
| 10000 | 0.11 | 1330000 | 1120000 | 210000 | 23100 |
| 12000 | 0.28 | 1540000 | 1120000 | 420000 | 117600 |
| 14000 | 0.22 | 1750000 | 1120000 | 630000 | 138600 |
| 16000 | 0.18 | 1750000 | 1120000 | 630000 | 113400 |
| 18000 | 0.1 | 1750000 | 1120000 | 630000 | 63000 |
|  |  |  |  |  | **455700** |

|  |  |
| --- | --- |
| **Manuacturer Profit** | **250000** |
| Fixed Cost | **100000** |
| Variable Cost | **55** |
| Distributor Sales | **125** |
| Manufacturo sells | **80** |
| Retailer Order | **14000** |
| Demand | **8000** |
| Discount | **20** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 16000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1160000 | 1280000 | -120000 | -13200 |
| 10000 | 0.11 | 1370000 | 1280000 | 90000 | 9900 |
| 12000 | 0.28 | 1580000 | 1280000 | 300000 | 84000 |
| 14000 | 0.22 | 1790000 | 1280000 | 510000 | 112200 |
| 16000 | 0.18 | 2000000 | 1280000 | 720000 | 129600 |
| 18000 | 0.1 | 2000000 | 1280000 | 720000 | 72000 |
|  |  |  |  |  | **394500** |

|  |  |
| --- | --- |
| **Manuacturer Profit** | **300000** |
| Fixed Cost | **100000** |
| Variable Cost | **55** |
| Distributor Sales | **125** |
| Manufacturo sells | **80** |
| Retailer Order | **16000** |
| Demand | **8000** |
| Discount | **20** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 18000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1200000 | 1440000 | -240000 | -26400 |
| 10000 | 0.11 | 1410000 | 1440000 | -30000 | -3300 |
| 12000 | 0.28 | 1620000 | 1440000 | 180000 | 50400 |
| 14000 | 0.22 | 1830000 | 1440000 | 390000 | 85800 |
| 16000 | 0.18 | 2040000 | 1440000 | 600000 | 108000 |
| 18000 | 0.1 | 2250000 | 1440000 | 810000 | 81000 |
|  |  |  |  |  | **295500** |

|  |  |
| --- | --- |
| **Manuacturer Profit** | **350000** |
| Fixed Cost | **100000** |
| Variable Cost | **55** |
| Distributor Sales | **125** |
| Manufacturo sells | **80** |
| Retailer Order | **18000** |
| Demand | **8000** |
| Discount | **20** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Retailer's Order** | **Retailer's profit** | **Manuacturer's profit** | **Total Profit** |
| 8000 | 360000 | 360000 | 720000 |
| 10000 | 426900 | 426900 | 853800 |
| 12000 | **470700** | **470700** | **941400** |
| 14000 | 455700 | 455700 | 911400 |
| 16000 | 394500 | 394500 | 789000 |
| 18000 | 295500 | 295500 | 591000 |

**Problem-2**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 8000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1000000 | 640000 | 360000 | 39600 |
| 10000 | 0.11 | 1000000 | 640000 | 360000 | 39600 |
| 12000 | 0.28 | 1000000 | 640000 | 360000 | 100800 |
| 14000 | 0.22 | 1000000 | 640000 | 360000 | 79200 |
| 16000 | 0.18 | 1000000 | 640000 | 360000 | 64800 |
| 18000 | 0.1 | 1000000 | 640000 | 360000 | 36000 |
|  |  |  |  |  | **360000** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manufacturer Orders 8000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 80000 | 0.11 | 640000 | 540000 | 100000 | 11000 |
| 10000 | 0.11 | 640000 | 540000 | 100000 | 11000 |
| 12000 | 0.28 | 640000 | 540000 | 100000 | 28000 |
| 14000 | 0.22 | 640000 | 540000 | 100000 | 22000 |
| 16000 | 0.18 | 640000 | 540000 | 100000 | 18000 |
| 18000 | 0.1 | 640000 | 540000 | 100000 | 10000 |
|  |  |  |  |  | **100000** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 10000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1036000 | 800000 | 236000 | 25960 |
| 10000 | 0.11 | 1250000 | 800000 | 450000 | 49500 |
| 12000 | 0.28 | 1250000 | 800000 | 450000 | 126000 |
| 14000 | 0.22 | 1250000 | 800000 | 450000 | 99000 |
| 16000 | 0.18 | 1250000 | 800000 | 450000 | 81000 |
| 18000 | 0.1 | 1250000 | 800000 | 450000 | 45000 |
|  |  |  |  |  | **426460** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manufacturer Orders 10000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 800000 | 686000 | 114000 | 12540 |
| 10000 | 0.11 | 800000 | 650000 | 150000 | 16500 |
| 12000 | 0.28 | 800000 | 650000 | 150000 | 42000 |
| 14000 | 0.22 | 800000 | 650000 | 150000 | 33000 |
| 16000 | 0.18 | 800000 | 650000 | 150000 | 27000 |
| 18000 | 0.1 | 800000 | 650000 | 150000 | 15000 |
|  |  |  |  |  | **146040** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 12000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1072000 | 960000 | 112000 | 12320 |
| 10000 | 0.11 | 1286000 | 960000 | 326000 | 35860 |
| 12000 | 0.28 | 1500000 | 960000 | 540000 | 151200 |
| 14000 | 0.22 | 1500000 | 960000 | 540000 | 118800 |
| 16000 | 0.18 | 1500000 | 960000 | 540000 | 97200 |
| 18000 | 0.1 | 1500000 | 960000 | 540000 | 54000 |
|  |  |  |  |  | **469380** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manufacturer Orders 12000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 960000 | 832000 | 128000 | 14080 |
| 10000 | 0.11 | 960000 | 796000 | 164000 | 18040 |
| 12000 | 0.28 | 960000 | 76000 | 884000 | 247520 |
| 14000 | 0.22 | 960000 | 76000 | 884000 | 194480 |
| 16000 | 0.18 | 960000 | 76000 | 884000 | 159120 |
| 18000 | 0.1 | 960000 | 76000 | 884000 | 88400 |
|  |  |  |  |  | **721640** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 14000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1108000 | 1120000 | -12000 | -1320 |
| 10000 | 0.11 | 1322000 | 1120000 | 202000 | 22220 |
| 12000 | 0.28 | 1536000 | 1120000 | 416000 | 116480 |
| 14000 | 0.22 | 1750000 | 1120000 | 630000 | 138600 |
| 16000 | 0.18 | 1750000 | 1120000 | 630000 | 113400 |
| 18000 | 0.1 | 1750000 | 1120000 | 630000 | 63000 |
|  |  |  |  |  | **452380** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manufacturer Orders 14000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1120000 | 978000 | 142000 | 15620 |
| 10000 | 0.11 | 1120000 | 942000 | 178000 | 19580 |
| 12000 | 0.28 | 1120000 | 906000 | 214000 | 59920 |
| 14000 | 0.22 | 1120000 | 870000 | 250000 | 55000 |
| 16000 | 0.18 | 1120000 | 870000 | 250000 | 45000 |
| 18000 | 0.1 | 1120000 | 870000 | 250000 | 25000 |
|  |  |  |  |  | **220120** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 16000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1144000 | 1280000 | -136000 | -14960 |
| 10000 | 0.11 | 1358000 | 1280000 | 78000 | 8580 |
| 12000 | 0.28 | 1572000 | 1280000 | 292000 | 81760 |
| 14000 | 0.22 | 1786000 | 1280000 | 506000 | 111320 |
| 16000 | 0.18 | 2000000 | 1280000 | 720000 | 129600 |
| 18000 | 0.1 | 2000000 | 1280000 | 720000 | 72000 |
|  |  |  |  |  | **388300** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manufacturer Orders 16000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1280000 | 1124000 | 156000 | 17160 |
| 10000 | 0.11 | 1280000 | 1088000 | 192000 | 21120 |
| 12000 | 0.28 | 1280000 | 1052000 | 228000 | 63840 |
| 14000 | 0.22 | 1280000 | 1016000 | 264000 | 58080 |
| 16000 | 0.18 | 1280000 | 980000 | 300000 | 54000 |
| 18000 | 0.1 | 1280000 | 980000 | 300000 | 30000 |
|  |  |  |  |  | **244200** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 18000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1180000 | 1440000 | -260000 | -28600 |
| 10000 | 0.11 | 1394000 | 1440000 | -46000 | -5060 |
| 12000 | 0.28 | 1608000 | 1440000 | 168000 | 47040 |
| 14000 | 0.22 | 1822000 | 1440000 | 382000 | 84040 |
| 16000 | 0.18 | 2036000 | 1440000 | 596000 | 107280 |
| 18000 | 0.1 | 2250000 | 1440000 | 810000 | 81000 |
|  |  |  |  |  | **285700** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manufacturer Orders 18000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1440000 | 1270000 | 170000 | 18700 |
| 10000 | 0.11 | 1440000 | 1234000 | 206000 | 22660 |
| 12000 | 0.28 | 1440000 | 1198000 | 242000 | 67760 |
| 14000 | 0.22 | 1440000 | 1162000 | 278000 | 61160 |
| 16000 | 0.18 | 1440000 | 1126000 | 314000 | 56520 |
| 18000 | 0.1 | 1440000 | 1090000 | 350000 | 35000 |
|  |  |  |  |  | **261800** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Retailer's Order** | **Retailer's profit** | **Manuacturer's profit** | **Total Profit** |
| 8000 | 360000 | 100000 | 460000 |
| 10000 | 426460 | 146040 | 572500 |
| 12000 | 469380 | 721640 | 1191020 |
| 14000 | 452380 | 220120 | 672500 |
| 16000 | 388300 | 244200 | 632500 |
| 18000 | 285700 | 261800 | 547500 |

**Problem-3**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 8000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 700000 | 496000 | 204000 | 22440 |
| 10000 | 0.11 | 700000 | 496000 | 204000 | 22440 |
| 12000 | 0.28 | 700000 | 496000 | 204000 | 57120 |
| 14000 | 0.22 | 700000 | 496000 | 204000 | 44880 |
| 16000 | 0.18 | 700000 | 496000 | 204000 | 36720 |
| 18000 | 0.1 | 700000 | 496000 | 204000 | 20400 |
|  |  |  |  |  | **204000** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manufacturer Orders 8000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 80000 | 0.11 | 796000 | 540000 | 256000 | 28160 |
| 10000 | 0.11 | 796000 | 540000 | 256000 | 28160 |
| 12000 | 0.28 | 796000 | 540000 | 256000 | 71680 |
| 14000 | 0.22 | 796000 | 540000 | 256000 | 56320 |
| 16000 | 0.18 | 796000 | 540000 | 256000 | 46080 |
| 18000 | 0.1 | 796000 | 540000 | 256000 | 25600 |
|  |  |  |  |  | **256000** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 10000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 736000 | 620000 | 116000 | 12760 |
| 10000 | 0.11 | 875000 | 620000 | 255000 | 28050 |
| 12000 | 0.28 | 875000 | 620000 | 255000 | 71400 |
| 14000 | 0.22 | 875000 | 620000 | 255000 | 56100 |
| 16000 | 0.18 | 875000 | 620000 | 255000 | 45900 |
| 18000 | 0.1 | 875000 | 620000 | 255000 | 25500 |
|  |  |  |  |  | **239710** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manufacturer Orders 10000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 920000 | 650000 | 270000 | 29700 |
| 10000 | 0.11 | 995000 | 650000 | 345000 | 37950 |
| 12000 | 0.28 | 995000 | 650000 | 345000 | 96600 |
| 14000 | 0.22 | 995000 | 650000 | 345000 | 75900 |
| 16000 | 0.18 | 995000 | 650000 | 345000 | 62100 |
| 18000 | 0.1 | 995000 | 650000 | 345000 | 34500 |
|  |  |  |  |  | **336750** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 12000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 772000 | 744000 | 28000 | 3080 |
| 10000 | 0.11 | 911000 | 744000 | 167000 | 18370 |
| 12000 | 0.28 | 1050000 | 744000 | 306000 | 85680 |
| 14000 | 0.22 | 1050000 | 744000 | 306000 | 67320 |
| 16000 | 0.18 | 1050000 | 744000 | 306000 | 55080 |
| 18000 | 0.1 | 1050000 | 744000 | 306000 | 30600 |
|  |  |  |  |  | **260130** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manufacturer Orders 12000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1044000 | 760000 | 284000 | 31240 |
| 10000 | 0.11 | 1119000 | 760000 | 359000 | 39490 |
| 12000 | 0.28 | 1194000 | 760000 | 434000 | 121520 |
| 14000 | 0.22 | 1194000 | 760000 | 434000 | 95480 |
| 16000 | 0.18 | 1194000 | 760000 | 434000 | 78120 |
| 18000 | 0.1 | 1194000 | 760000 | 434000 | 43400 |
|  |  |  |  |  | **409250** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 14000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 808000 | 868000 | -60000 | -6600 |
| 10000 | 0.11 | 947000 | 868000 | 79000 | 8690 |
| 12000 | 0.28 | 1086000 | 868000 | 218000 | 61040 |
| 14000 | 0.22 | 1225000 | 868000 | 357000 | 78540 |
| 16000 | 0.18 | 1225000 | 868000 | 357000 | 64260 |
| 18000 | 0.1 | 1225000 | 868000 | 357000 | 35700 |
|  |  |  |  |  | **241630** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manufacturer Orders 14000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1168000 | 870000 | 298000 | 32780 |
| 10000 | 0.11 | 1243000 | 870000 | 373000 | 41030 |
| 12000 | 0.28 | 1318000 | 870000 | 448000 | 125440 |
| 14000 | 0.22 | 1393000 | 870000 | 523000 | 115060 |
| 16000 | 0.18 | 1393000 | 870000 | 523000 | 94140 |
| 18000 | 0.1 | 1393000 | 870000 | 523000 | 52300 |
|  |  |  |  |  | **460750** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 16000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 844000 | 992000 | -148000 | -16280 |
| 10000 | 0.11 | 983000 | 992000 | -9000 | -990 |
| 12000 | 0.28 | 1122000 | 992000 | 130000 | 36400 |
| 14000 | 0.22 | 1261000 | 992000 | 269000 | 59180 |
| 16000 | 0.18 | 1400000 | 992000 | 408000 | 73440 |
| 18000 | 0.1 | 1400000 | 992000 | 408000 | 40800 |
|  |  |  |  |  | **192550** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manufacturer Orders 16000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1292000 | 980000 | 312000 | 34320 |
| 10000 | 0.11 | 995000 | 980000 | 15000 | 1650 |
| 12000 | 0.28 | 1442000 | 980000 | 462000 | 129360 |
| 14000 | 0.22 | 1517000 | 980000 | 537000 | 118140 |
| 16000 | 0.18 | 1592000 | 980000 | 612000 | 110160 |
| 18000 | 0.1 | 1592000 | 980000 | 612000 | 61200 |
|  |  |  |  |  | **454830** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Retailer Orders 18000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 880000 | 1116000 | -236000 | -25960 |
| 10000 | 0.11 | 1019000 | 1116000 | -97000 | -10670 |
| 12000 | 0.28 | 1158000 | 1116000 | 42000 | 11760 |
| 14000 | 0.22 | 1297000 | 1116000 | 181000 | 39820 |
| 16000 | 0.18 | 1436000 | 1116000 | 320000 | 57600 |
| 18000 | 0.1 | 1912500 | 1116000 | 796500 | 79650 |
|  |  |  |  |  | **152200** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manufacturer Orders 18000** | | | | |  |
| **Retailer's Order** | **Probability** | **Revenue** | **Cost** | **Profit** | **Expected profit** |
| 8000 | 0.11 | 1416000 | 1090000 | 326000 | 35860 |
| 10000 | 0.11 | 1491000 | 1090000 | 401000 | 44110 |
| 12000 | 0.28 | 1566000 | 1090000 | 476000 | 133280 |
| 14000 | 0.22 | 1641000 | 1090000 | 551000 | 121220 |
| 16000 | 0.18 | 1716000 | 1090000 | 626000 | 112680 |
| 18000 | 0.1 | 1791000 | 1090000 | 701000 | 70100 |
|  |  |  |  |  | **517250** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Retailer's Order** | **Retailer's profit** | **Manuacturer's profit** | **Total Profit** |
| 8000 | 204000 | 256000 | 460000 |
| 10000 | 239710 | 336750 | 576460 |
| 12000 | 260130 | 409250 | 669380 |
| 14000 | 241630 | 460750 | 702380 |
| 16000 | 192550 | 454830 | 647380 |
| 18000 | 152200 | 517250 | 669450 |