1. The demand for a product of ABC company varies greatly from month to month. The probability distribution of the company’s monthly demand is given in the following table

|  |  |
| --- | --- |
| Demand (in units) | Probability |
| 300 | 0.20 |
| 400 | 0.30 |
| 500 | 0.35 |
| 600 | 0.15 |

1. If the company orders the expected monthly demand amount, what should ABC’s monthly order quantity be for this product?
2. Assume that ABC company orders the amount in (a), what is the probability that the company has the stock-out problem? (Note: (i) stock-out problem means that the demand is greater than the on-hand stock for the month; (ii) we assume that the company can only order once at the beginning of the month.)
3. Compute the standard deviation of the monthly demand?
4. Assume that each unit sold generates $70 in revenue and that each unit ordered cost $50. If the monthly order quantity is chosen to be 500 units, what is the expected monthly profit? (note: Profit=Revenue – Cost)