Famous Albert prides himself on being the Cookie King of the West. Small, freshly baked cookies are the speciality of his shop. Famous Albert has asked for help to determine the number of cookies he should make each day. From an analysis of past demand he estimated demand for cookies as

|  |  |
| --- | --- |
| DEMAND (dozen) | Probability of Demand |
| 1800 | 0.05 |
| 2000 | 0.1 |
| 2200 | 0.2 |
| 2400 | 0.3 |
| 2600 | 0.2 |
| 2800 | 0.1 |
| 3000 | 0.05 |

Each dozen sells for $0.69 and costs $0.49, which includes handling and transportation. Cookies that are not sold at the end of the day are reduced to $0.29 and sold the following day as day-old merchandise.

1. Construct a table showing the profits or losses for each possible quantity.
2. What is the optimal number of cookies to make?
3. Solve this problem by using marginal analysis.