**(1pt) Question 1.**

Before books aimed at preschool children are marketed, reactions are obtained from a panel of preschool children. These reactions are categorized as favorable, neutral, or unfavorable. Subsequently, book sales are categorized as high, moderate, or low, according to the norms of this market. Similar panels have evaluated 1,000 books in the past. The accompanying table shows their reactions and the resulting market performance of the books.

| Sales | Panel Reaction | | |
|---|---|---|---|
| | Favorable | Neutral | Unfavorable |
| High | 173 | 101 | 61 |
| Moderate | 88 | 211 | 70 |
| Low | 42 | 113 | 141 |

Define the events as H (high), M (moderate), L (low), F (favorable), N (neutral), and U (unfavorable).

a) If the panel reaction is favorable, what is the probability that sales will be high?
b) If the panel reaction is unfavorable, what is the probability that sales will be low?
c) If the panel reaction is neutral or favorable, what is the probability that sales will be low?
d) If sales are low, what is the probability that the panel reaction was neutral or favorable?

Solution:

a)  $P(H|F) = P(F \cap H)/P(F) = 0.173 / 0.303 = 0.571$
b)  $P(L|U) = P(U \cap L)/P(U) = 0.141/0.272 = 0.5184$
c)  $P(L|N \cup F) = P((N \cup F) \cap L) / P(N \cup F) = 0.155/0.728 = 0.2129$
d)  $P(N \cup F|L) = P((N \cup F) \cap L) / P(L) = 0.155/0.296 = 0.5236$