Practice Set 9  Discrete Probability Distributions

I. Darin sells three different Walkman CD recorders; one for $149, one for $159, and a third for $169. Of the 187 machines sold during a recent period, 43 were the least expensive, 90 were moderately priced, and 54 were the expensive model.

A. Calculate the expected price of Walkman sales.

<table>
<thead>
<tr>
<th>Price</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>$149</td>
<td>43</td>
</tr>
<tr>
<td>$159</td>
<td>90</td>
</tr>
<tr>
<td>$169</td>
<td>54</td>
</tr>
</tbody>
</table>

B. Compare this answer to the page 12 weighted mean sales value of Walkman sales.

C. In theory, what is the difference between a weighted mean of variable x and the expected value of x?

II. When waiting on a customer, Darin's salespeople make a sale 60% of the time (see page 42). Use the binomial formula or your statistics software to calculate the probability of making exactly 3 sales to 5 customers.

III. Using the appropriate table or your statistics software, complete the binomial distribution described by question II.

Special Note

I. Variables that may follow a binomial probability distribution
   A. Probability of an employee contributing to the company pension plan
   B. Probability of collecting an overdue accounts receivable
   C. Probability of receiving a positive response to a marketing campaign
   D. Probability of a part being defective

II. Variables that may follow a Poisson probability distribution
   A. Number of defects on a 300 foot roll of aluminum
   B. Errors on a typed page
   C. Customers arriving at a drive up window within a 5 minute period
   D. Number of rare disease cases per 1,000,000 people