1. Recall that the sample mean and sample standard deviation are

\[ \bar{y} = \frac{\sum_{i=1}^{n} y_i}{n} \quad \text{and} \quad s = \sqrt{\frac{\sum_{i=1}^{n} (y_i - \bar{y})^2}{n-1}} \]

Suppose \( n_1 = 75 \) women and \( n_2 = 18 \) mean were given an emotional intelligence test. The mean and SD of the women’s scores were

\[ \bar{y} = 30.44 \quad \text{and} \quad s = 5.10 \]

The mean and SD of the men’s scores were

\[ \bar{y} = 28.22 \quad \text{and} \quad s = 5.20 \]

What is the mean and SD of the combined sample of \( n = 93 \) men and women?

2. The airfreight breakage data of Problem 1.21 on p.34 of textbook is copied below:

<table>
<thead>
<tr>
<th>Shipment (( i ))</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of transfers (( X_i ))</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>No. of broken ampules (( Y_i ))</td>
<td>16</td>
<td>9</td>
<td>17</td>
<td>12</td>
<td>22</td>
<td>13</td>
<td>8</td>
<td>15</td>
<td>19</td>
<td>11</td>
</tr>
</tbody>
</table>

(a) Calculate the regression equation for predicting the number of broken ampules given the number of transfers using a spreadsheet-style calculation similar to Table 1.1 on page 18. You may use a calculator or a computing application like R or SAS.

(b) On the average, the number of broken ampules increases by __________ for every additional transfer.