Calculating $\Sigma X$ and $\Sigma X^2$

Method 1: Copy Data from SPSS to Excel and Use Excel To Do the Calculations

1. Open the data set in SPSS.
2. Open a new workbook in Excel
3. In SPSS, select all of the values of the variable of interest by dragging across them:

   ![SPSS Data Set]

4. Copy (Ctrl-C or Edit | Copy or Right-click | Copy)
5. In Excel, click in the first cell in which you want the data to go; e.g. click in cell A1
6. Paste (Ctrl-V or click Paste on the Home tab or Right-click | Paste)
7. In any empty cell in Excel, enter the formula for calculating the sum of a range of cells:

\[ \text{=sum(cell 1:cell 2)} \]

Replace cell 1 and cell 2 with the first and last cells in the range of cells for which you want the sum. For example, to get the sum of the 11 values in the above figure, you would type \[ \text{=sum(a1:a11)} \] because the data start in cell a1 and end in cell a11. For the above example, the sum will equal 2974.

8. In any empty cell in Excel, enter the formula for calculating the sum of the squared values in a range of cells (This is not the sum of squares.)
=sumsq(cell 1:cell 2)

Replace cell 1 and cell 2 with the first and last cells in the range of cells for which you want the sum of their squared values. For example, to get the sum of the squares of the 11 values in the above figure, you would type =sumsq(a1:a11) because the data start in cell a1 and end in cell a11. For the above example, the sum of the squared values will equal 807296

**Method 2: Use SPSS To Create a Computed Variable and Use Descriptive Statistics To Get the Sums**

1. Open the data set in SPSS
2. Transform | Compute Variable:

   ![Compute Variable screenshot](image)

3. Type a name of the new variable in the Target Variable box. I usually use the name of the variable with SQ (for squared) tacked onto the end. In this example, we are calculating the sum of the points variable and the sum of the squared values of the points variable. So the
new variable might be pointsSQ. Do not use spaces or other punctuation in the variable name.

4. In the Numeric Expression box type the name of the variable followed by an asterisk (the multiplication symbol in SPSS) followed by the name of the variable again. E.g. type points*points.

5. Click OK. The new variable should appear just to the right of all of the other data in the data set.

7. Move the variable (points) and the new variables (pointsSQ) into the Variable(s) box by first clicking on the variable and then clicking on the arrow button (or you can drag the variables over)

8. Click the Options button
9. Make sure that the Sum is checked. You can clear all of the other checked values.
10. Click Continue  
11. Click OK  
12. Interpret the output. The sum of the number of points expected equals 2974. The sum of the squared values of the number of points expected equals 807,296

<table>
<thead>
<tr>
<th>Points expected</th>
<th>N</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>pointsSQ</td>
<td>11</td>
<td>807296.00</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>11</td>
<td>2974</td>
</tr>
</tbody>
</table>