Lab Project 3 – 13 pts

*Please show your work and write your answers neatly on these sheets of paper, unless otherwise stated. Staple these pages together with your graph.*

A classic correlation involves the association between the temperature and the number of times a cricket chirps in a minute. Listed below are the numbers of chirps in 1 min and the corresponding temperatures in degrees Fahrenheit.

<table>
<thead>
<tr>
<th>Chirps in 1 min</th>
<th>882</th>
<th>1188</th>
<th>1104</th>
<th>864</th>
<th>1200</th>
<th>1032</th>
<th>960</th>
<th>900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature (°F)</td>
<td>69.7</td>
<td>93.3</td>
<td>84.3</td>
<td>76.3</td>
<td>88.6</td>
<td>82.6</td>
<td>71.6</td>
<td>79.6</td>
</tr>
</tbody>
</table>

1. Which is the independent variable in this situation?

2. Draw a neat scatterplot for this data set, by hand, on a piece of graphing paper. Clearly, you will have to truncate your axes.

3. Does the scatterplot look linear?

4. Find the equation for the linear regression line.

5. Draw your linear regression line in your scatterplot from problem 2. Show all your work on how you go about graphing it.
6. Using the equation from problem 4, determine how many chirps per minute one would be expect to hear, on average, at a temperature of 80°F?

7. What is the slope and how would you interpret it in this situation?

8. What is the y-intercept and how would you interpret it in this situation?

9. Find the correlation coefficient.

10. Is the correlation coefficient significant? Explain how you know this.

11. Is there sufficient evidence to conclude that there is a relationship between the number of chirps in 1 min and the temperature? Explain.

12. Is there sufficient evidence to conclude that an increase in the temperature causes crickets to increase the number of chirps in 1 minute? Explain.