Correlation and Regression – part 1

1. The heights and weights of 11 men between the ages of 21 and 26 were measured. The data are presented in the table below.

<table>
<thead>
<tr>
<th>Height (Inches), x</th>
<th>75</th>
<th>66</th>
<th>71</th>
<th>67</th>
<th>70</th>
<th>72</th>
<th>70</th>
<th>72</th>
<th>76</th>
<th>69</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (Pounds), y</td>
<td>187</td>
<td>151</td>
<td>183</td>
<td>155</td>
<td>179</td>
<td>175</td>
<td>181</td>
<td>173</td>
<td>194</td>
<td>212</td>
</tr>
</tbody>
</table>

a. Draw a scatter diagram of the data, treating the height as the explanatory variable.

b. Compute the linear correlation coefficient between the height and the weight of the men in the sample. Round your result to three decimal places.

c. Comment on the type of relation that appears to exist between the height and the weight of the men based on the scatter diagram and the linear correlation coefficient.
d. Find the least squares regression line, treating height, $x$, as the explanatory variable and weight, $y$, as the response variable.

e. Interpret the slope and intercept, if appropriate. If it is not appropriate to interpret the y-intercept, briefly explain why.

f. Use the regression line to predict the weight of a man who is 73 inches