Quiz 6 for Statistics 301
Elementary Statistical Methods - Spring 2001
Material Covered: Section 10.3 of Workbook and Section 10.2 of text
Friday, 13th April

This is a 15 minute quiz, worth 5% and marked out of 5 points. The total possible points awarded for each question is given in square brackets at the beginning of each question.

Name (please print): __________________________. ID Number: ______________ last first

1. [2 points] Circle true or false.
   (a) True / False The standard deviation of \( y \) about the least squares line is the same as the standard deviation of the error \( e \), \( S_e \).
   (b) True / False Generally speaking, the higher the correlation between \( x \) and \( y \), the better will be the predictions which are made using the least squares line provided the prediction is made for an \( x \)-value within the range of observed \( x \)-values.
   (c) True / False The least squares line is used primarily to measure how linear the data is.
   (c) True / False The least squares line is of no value in predicting \( y \) given \( x \) when \( b \approx 0 \).

2. Consider the following data of the hemoglobin A1C reading versus blood sugar readings of eight insulin dependent diabetics.

<table>
<thead>
<tr>
<th>blood sugar reading, ( x )</th>
<th>120</th>
<th>145</th>
<th>210</th>
<th>105</th>
<th>108</th>
<th>150</th>
<th>160</th>
<th>115</th>
</tr>
</thead>
<tbody>
<tr>
<td>hemoglobin A1C reading, ( y )</td>
<td>6.8</td>
<td>7.2</td>
<td>9.2</td>
<td>5.5</td>
<td>8.5</td>
<td>6.5</td>
<td>7.9</td>
<td>6.2</td>
</tr>
</tbody>
</table>

(a) [1 point] The linear regression equation is given by (circle closest one)
   (i) \( \hat{y} = 0.023 + 4.05x \)
   (ii) \( \hat{y} = -4.05 - 0.023x \)
   (iii) \( \hat{y} = -4.05 + 0.023x \)
   (iv) \( \hat{y} = 4.05 + 0.023x \)
   (v) \( \hat{y} = -4.05x + 0.023 \)

(b) [1 point] The standard error of estimate is (circle closest one) 1.01 / 2.78 / 3.26 / 4.78 / 5.33.

(c) [1 point] The standard error of estimate is a (circle one) statistic / parameter.
(1) True, True, False, True

(2a) (iv) $\hat{y} = 4.05 + 0.023x$

(2b) 1.01

(2c) statistic