Directions: This quiz is designed for 20 minutes. Please answer all questions. Please show your steps and box your final answers for the following problem solving questions.

The following are measurements of the air velocity and evaporation coefficient of burning fuel droplets in an impulse engine:

<table>
<thead>
<tr>
<th>Air Velocity (cm/sec)</th>
<th>10</th>
<th>30</th>
<th>50</th>
<th>70</th>
<th>90</th>
<th>110</th>
<th>130</th>
<th>150</th>
<th>170</th>
<th>190</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaporation coefficient (mm²/sec)</td>
<td>0.248</td>
<td>0.457</td>
<td>0.435</td>
<td>0.908</td>
<td>0.666</td>
<td>0.875</td>
<td>1.348</td>
<td>1.546</td>
<td>1.337</td>
<td>1.865</td>
</tr>
</tbody>
</table>

You may use the following summary statistics:

\[
\sum x = 1,000, \quad \sum x^2 = 133,000, \quad \sum y = 9.685, \quad \sum xy = 1246.47, \quad \sum y^2 = 11.966237
\]

a. Calculate the coefficient of correlation and interpret this value. (4).
b. Sketch the scatter plot for this data and comment on it. (2).
c. Find the estimated regression line and sketch it. (8).
d. Predict the evaporation coefficient of a droplet when the air velocity is 75 cm/s. (2).