Homework 5

A. SLOPE & LINE OR CURVE OF BEST-FIT

1. Megan and Bryce opened a new store called the Donut Pit. Their goal is to reach a profit of $20,000 in their 18th month of business. The table and scatter plot below represent the profit, $P$, in thousands of dollars, that they made during the first 12 months.

<table>
<thead>
<tr>
<th>$t$ (months)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P$ (profit, in thousands of dollars)</td>
<td>3.0</td>
<td>2.5</td>
<td>4.0</td>
<td>5.0</td>
<td>6.5</td>
<td>5.5</td>
<td>7.0</td>
<td>6.0</td>
<td>7.5</td>
<td>7.0</td>
<td>9.0</td>
<td>9.5</td>
</tr>
</tbody>
</table>

Donut Pit Profits

- a. Draw a reasonable line of best fit.
- b. Find the slope and explain its meaning.
- c. Using the line of best fit, predict whether Megan and Bryce will reach their goal in the 18th month of their business.
2. Draw the line or curve of best fit for the data given in the table below.

<table>
<thead>
<tr>
<th>x (m)</th>
<th>0.01</th>
<th>0.02</th>
<th>0.03</th>
<th>0.04</th>
<th>0.05</th>
<th>0.06</th>
<th>0.07</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEₐ (J)</td>
<td>0.0025</td>
<td>0.01</td>
<td>0.025</td>
<td>0.04</td>
<td>0.0625</td>
<td>0.09</td>
<td>0.1225</td>
</tr>
</tbody>
</table>

B. AREA UNDER THE GRAPH

1. Find the area under the graph:
   a. for the first 3.0 seconds
   b. between 3.0 and 7.0 seconds.

   a. Area: ___________
   Unit: ___________

   b. Area: ___________
   Unit: ___________