Example 1:

Cedar point is testing the price-profit of their cold soda in vending machines. Here is the price-profit data taking into account the costs of the soda, delivery and all other expenses for 1 week.

<table>
<thead>
<tr>
<th>Price</th>
<th>$1.00/soda</th>
<th>$2.50</th>
<th>$4.00</th>
<th>$5.50</th>
<th>$7.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit</td>
<td>$1000</td>
<td>$2000</td>
<td>$10,000</td>
<td>$2500</td>
<td>$0</td>
</tr>
</tbody>
</table>

In words, describe why this pattern seems to be happening

___________________________________________________________________________
___________________________________________________________________________

Using your calculator, can find the standard form of the quadratic  \( y = \) _________________
Round to the nearest tenth.

Make an appropriate graph below. Use you table to label a dot for each mark along the x-axis. Label x and y-axis appropriately. Draw a rough sketch of the points in the table AND the line.

Using the calculator, find the price (to the nearest penny) you should charge and identify the amount of profit made.

PRICE       PROFIT

Using the calculator, find the zero (break even points) for the regression line

ZERO (left) ZERO (left)

Based on the r-value and the graph, how do you feel about the regression line?

___________________________________________________________________________
Example 2:

According to CDC data (www.cdc.gov) here are U.S. Measles cases per year for a select set of years that could produce a quadratic graph

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases (est.)</td>
<td>205</td>
<td>45</td>
<td>195</td>
<td>625</td>
</tr>
</tbody>
</table>

In words, describe what seems to be happening

___________________________________________________________________________
___________________________________________________________________________

Using your calculator, can find the standard form of the quadratic $y =$ ________________
Round to the nearest tenth. Treat “2010” as “0”

Make an appropriate graph below. Use you table to label a dot for each mark along the x-axis. Label x and y-axis appropriately. Draw a rough sketch of the points in the table AND the line.

Using the calculator, find the lowest number of Measles cases and the approximate year.

| CASES | _____________ | YEAR | _____________ |

Using the calculator, find the projected number of measles cases in 2015.

2015  _____________

Based on the r-value and the graph, how do you feel about the regression line?

___________________________________________________________________________

Create a negative critique for using the quadratic regression for this data.

___________________________________________________________________________
Homework: Problem 1:

Wings Stadium is testing the price-profit of their concert tickets. Here is the price-profit data taking into account the costs of the talent, support staff and all other expenses for 5 shows.

<table>
<thead>
<tr>
<th>Ticket Price</th>
<th>$25</th>
<th>$35</th>
<th>$50</th>
<th>$60</th>
<th>$75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit</td>
<td>$15,000</td>
<td>$25,000</td>
<td>$75,000</td>
<td>$60,000</td>
<td>$30,000</td>
</tr>
</tbody>
</table>

In words, describe why this pattern seems to be happening.

___________________________________________________________________________
___________________________________________________________________________

Using your calculator, can find the standard form of the quadratic \( y = \) _________________
Round to the nearest tenth.

Make an appropriate graph below. Use you table to label a dot for each mark along the x-axis. Label x and y-axis appropriately. Draw a rough sketch of the points in the table AND the line.

Using the calculator, find the price (to the nearest penny) you should charge and identify the amount of profit made.

PRICE      _________________  PROFIT      _________________

Using the calculator, find the zero (break even points) for the regression line

ZERO (left)  _________________  ZERO (left)  _________________

Based on the r-value and the graph, how do you feel about the regression line?

___________________________________________________________________________
 Homework: Problem 2:

According to CDC data back in 2003 (www.cdc.gov) here are estimated number of Aids cases for 1999 though 2003

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases (est.)</td>
<td>41,350</td>
<td>41250</td>
<td>40,850</td>
<td>41,300</td>
<td>43,200</td>
</tr>
</tbody>
</table>

In words, describe what seems to be happening

___________________________________________________________________________
___________________________________________________________________________

Using your calculator, can find the standard form of the quadratic  \( y = \) ________________
Round to the nearest tenth. Treat “1998” as “0”

Make an appropriate graph below. Use you table to label a dot for each mark along the x-axis. Label x and y-axis appropriately. Draw a rough sketch of the points in the table AND the line.

![Graph](image)

Using the calculator, find the lowest number of AIDS cases and the approximate year.

<table>
<thead>
<tr>
<th>CASES</th>
<th>YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Using the calculator, find the projected number of measles cases in 2006.

<table>
<thead>
<tr>
<th>2006</th>
<th></th>
</tr>
</thead>
</table>

Based on the r-value and the graph, how do you feel about the regression line?

___________________________________________________________________________

Create a negative critique for using the quadratic regression for this data.

___________________________________________________________________________