Break Even Analysis

You are the marketing manager for Pineapple Computers and are in charge of launching a new product – the Y-Phone. So far, the company has invested $250,000 in a new plant to produce the Y-Phone. Each Y-Phone costs the company $10 to build, and your customer focus groups have told you that you can sell the Y-Phone for no more than $200 each.

Mr. James Buffet, CEO of Pineapple Computers, asks you to tell the Board of Directors how many Y-Phones must be sold to recover production costs and when profitability will begin. The Board would like to see a graph depicting the break even point, and they would like to have the exact quantity value.

Your task is to construct a graph showing total revenue and total cost with a label identifying the exact value of the break even point.

Identify the following values:

  Fixed Cost: __________
  Variable Cost: __________
  Price/unit: __________

Substitute the known values into the equations below to solve for total revenue (TR), total cost (TC), and break even point. Substitute your own values for Q starting at 500. Hint: Increment Q by 100.

Total Revenue = \frac{\text{Price}}{\text{Unit}} \cdot \text{Quantity}

<table>
<thead>
<tr>
<th>Q</th>
<th>TR ($)</th>
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<tbody>
<tr>
<td>500</td>
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Total Cost = Fixed Cost + (Variable Cost \cdot Quantity)

<table>
<thead>
<tr>
<th>Q</th>
<th>TC ($)</th>
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<td>500</td>
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Recall that the break even point is where total revenue and total costs are equivalent (TR=TC). Also, recall that total revenue is the product of selling price/unit and quantity (PQ), and total costs are the sum of fixed cost and variable cost times quantity (F + VQ). Expressing the break even point in terms of total revenue and total cost yields the following equation:

\[ PQ = F + (VQ) \]
Solving for Q:

\[ PQ - VQ = F \]

\[ Q(P-V) = F \]

\[ Q = \frac{FC}{P - VC} \] or Break Even Point (BEP)

Using the known values of F, P and V calculate, in the space below, the Break Even Point (BEP).

Use the blank graph below to graph Total Revenue and Total Cost from the tables above. Label the Break Even Point (TR=TC).