



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.*

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

Q	500									
TR (\$)										

$$\text{Total Cost} = \text{Fixed Cost} + (\text{Variable Cost} \cdot \text{Quantity})$$

Q	500									
TC (\$)										

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:

$$PQ = F + (VQ)$$



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Solving for Q:

$$PQ - VQ = F$$

$$Q(P - V) = F$$

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

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).

