Pineapple Computers

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: $250,000

Variable Cost: $10

Price/unit: $200

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 $Q \geq 100$.*

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

Q	500	600	700	800	900	1000	1100	1200	1300	1400
TR ($)	100000	120000	140000	160000	180000	200000	220000	240000	260000	280000

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

Q	500	600	700	800	900	1000	1100	1200	1300	1400
TC ($)	255000	256000	257000	258000	259000	260000	261000	262000	263000	264000

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:

$$PQ - VQ = F$$

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

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

Using the known values of F, P and V calculate, in the space below, the break even point (BEP).

$$BEP = \frac{\$250{,}000}{\$200 - \$10}$$

$$BEP = 1315.78 \text{ or } 1316 \text{ units}$$

Use the blank graph below to graph total revenue and total cost from the tables above.
Label the break even point (TR=TC).

Y-Phone Break Even Point

— TR — TC

1316 units

$

300000
250000
200000
150000
100000
50000
0

500 600 700 800 900 1000 1100 1200 1300 1400

Quantity