Sample Breakeven Problem for Exam 2.

A firm has the following income statement
For a month.

Sales: 3,000 units at $80/unit $240,000

Less: Cost of Goods Sold.
   Variable Production Cost 180,000
   Fixed Production Cost 19,800

Gross Margin 40,200

Selling and Administrative Expenses
   Variable Selling Cost 21,000
   Fixed Selling Expenses 7,500

Net Income Before Taxes $11,700

1. Find the firm’s breakeven output.
2. If it wishes to have a monthly net income before taxes of $18,000 and its cost structure remains as above, what quantity of output will it need to sell?
3. If its variable production costs increase by $4 per unit, what will be its breakeven output?
4. After the increase in costs in 3, what output will it need to sell if it wishes to have the $18,000 monthly pretax profit stated earlier?
5. Given the variable production cost increase but no change in fixed costs, what will be the firm’s monthly profit if it sells 4,000 units of output per month?

ANSWERS.

1. \( Q_b = \frac{TFC}{P – AVC} = \frac{27,300}{80 – 67} = \frac{27,300}{13} = 2,100 \)
2. \( Q = \frac{(27,300 + 18,000)}{(80 – 67)} = \frac{3,485}{13} = 270.38 \)
3. \( Q_b = \frac{TFC}{P – AVC} = \frac{27,300}{80 – 71} = \frac{27,300}{9} = 3,033 \)
4. \( Q = \frac{(27,300 + 18,000)}{(80 – 71)} = \frac{5,033}{9} = 558.11 \)
5. Profit = \( Q(P – AVC) – TFC = 4,000(9) – 27,300 = $8,700 \)