KING FAHD UNIVERSITY OF PETROLUEM & MINERALS
Math 131 Term 042
Quiz #1 Section: 4(b)

Name: ***ID:*** ***Serial:***

Q1Suppose that the total costs of a product is \$50,000 and the cost per unit is \$15. If the producer sells this product for \$20 per unit, then find the minimum number of units that he should sell so that he will have a profit?

Solution:

Let **x** be the number of units that he will sell. Then:

$$\text{Profit} = TR - TC = 20x - (50,000 + 15x)$$
$$= 20x - 50,000 - 15x$$
$$= 5x - 50,000 > 0$$

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$$x > 10,000$$

Therefore, he should sell at least 10,001 units, so that he will have a profit

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Q2. Suppose that the producer will sell 100 units of a product if the price is \$20 per unit and he will sell 150 units if the price is \$35 per unit. Then find:

a. The supply function assuming that it is linear.
b. The quantity that the producer will sell if the price is \$25 per unit?

Solution:

a. $m = (35-20)/(150-100) = 3/10$

Then the supply function is given by:

$$p - 35 = (3/10)(q - 150)$$

which implies that

$$p = (3/10)q - 10$$

b. $p = 25 = (3/10)q - 10$

implies that $q = \left(\frac{10}{3}\right)(25+10) = \frac{350}{3}$