SOLUTIONS

KING FAHD UNIVERSITY OF PETROLUEM & MINERALS

Math 131 - Term 041

Quiz #2 *Section: 1 & 2*

Name: *ID:* *Serial:*

Question One:

A manufacturer sells a product at \$8.35 per unit, selling all produced. The fixed cost is \$2116 and the variable cost is \$7.2 per unit .Find

a. The level of production to make a profit of \$4600?

(a) Let q be the number of units produced and sold

$$\text{Profit} = T.R. - T.C. = pq - (F.C. + V.C.)$$

$$4600 = 8.35q - (2116 + 7.2q) = 8.35q - 2116 - 7.2q$$

$$4600 + 2116 = 1.15q \Rightarrow q = \frac{6716}{1.15} = 5840$$

The number of units is 5840

b. The level of production where the break-even point occurs?

(b) At the break-even point

$$T.R. = T.C.$$

$$8.35q = 2116 + 7.2q$$

$$8.35q - 7.2q = 2116 \Rightarrow 1.15q = 2116 \Rightarrow q = \frac{2116}{1.15} = 1840 \text{ units.}$$

Question Two

Solve the following inequalities

$$\begin{cases} 2x - 2 \geq y, \\ 2x \leq 3 - 2y. \end{cases}$$

$y = 2x - 2$,

$When\ x = 0, \Rightarrow y = -2,$

$When\ x = 1, \Rightarrow y = 0$

$y = -x + \frac{3}{2}$

$When\ x = 0, \Rightarrow y = \frac{3}{2},$

$When\ x = \frac{3}{2}, \Rightarrow y = 0$