King Fahd University of Petroleum & Minerals
Department of Math and Stat
Math 131-2 Semester 162 - Exam 1

Name_____ ID No._____

20 Points: Q1 = 3, Q2= 3, Q3=2, Q4=3, Q5=2, Q6=3, Q7=4

1) A painting contractor completed two jobs , A and B, at $480 each. For job A, this represented a 20% loss; and for job B it was a 20% profit (based on his cost for each job). How much did he make or lose on the two jobs?

2) Suppose consumers purchase q units of a manufacturer's product when the price per unit (in dollars) is $60 - 0.5q$. If no more than 75 units can be sold, find the number of units that must be sold in order that sales revenue be $1000 .

3) Car rental company A rents a compact car for $26 per day, while rental company B rents an equivalent car for $21 per day plus an initial fee of $57. If a customer wants the cheaper rate, when should he rent from company B?

4) Suppose that consumers will demand 100 units of a product when the price is $10 per unit, and 120 units when the price is $8 per unit. Assuming that price p and quantity q are linearly related, find the price at which 90 units are demanded.

5) The supply and demand equations for a product are $p = \frac{1}{10}q + 20$ and $p = 200 - \frac{1}{2}q$, respectively, where q represents the number of units and p represents the price per unit in dollars. Find the equilibrium price.

6) Solve the system $\begin{cases} 2x - 5y = 10 \\ y = \sqrt{x + 4} \end{cases}$

7) For what value(s) of a will the following system of equations have a solution? Find that solution.

$$\begin{cases} x - y - 3z = 2 \\ x + y - z = 4 \\ 2x - y - 5z = a \end{cases}$$