

King Fahd University of Petroleum and Minerals

Department of Mathematical Sciences

Dr. Raja Latif. Quiz 1 Math 131 Chapters 2 & 4, Term 041 Sep - Jan 2004

Time : 30 Minutes

Saturday October 09, 2004

Marks: 50

Name																				
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Write	Your	Student	Identity	Number	Correctly	Section	Section	Serial Number
						7 : 1pm		

NOTE: SHOW COMPLETE SOLUTION WITH ALL STEPS FOR FULL CREDIT.

Q.1. Demand. The demand for the diet pills is 50 pills at a price of \$ 47 and 80 pills at a price of \$32. Determine linear demand function for the pills.

Q2. A grocer has two kinds of chocolate. The first kind sells at \$ 4.20 a pound, the second kind at \$ 3.70 a pound. How much should he use of each kind to get 50 pounds of a mixture that he could sell at \$ 4 a pound?

Q3. A rocket is shot vertically upward from the ground with an initial velocity of 128 feet per second. The rocket is at a height h (in feet) after t seconds of launching, where $h = 128t - 16t^2$.

(a) After what time will the rocket be at a height of 192 feet above the ground?

(b) When will the rocket return to the ground?

(c) Find the maximum height that the rocket will reach.
(Hint: The time of upward travel equals half the time to return to the ground.)

Q.4. (Production Decision) A manufacturer can sell all the units produced at a price of \$ 30 each. Fixed costs are \$ 12000 per month; in addition, it costs \$ 22 to produce each unit in materials and labor. How many Minimum number of units must be produced and sold each month by the company to realize (gain/have) a profit?

Q5. Nadir Inc. produces three models of television sets: deluxe, super deluxe, and ultra. Each deluxe set requires 2 hours of electronics work, 2 hours of assembly time, and 1 hour of finishing time. Each super-deluxe requires 1, 3, and 1 hour of electronics, assembly, and finishing time, respectively. Each ultra requires 3, 2, and 2 hours of electronics, assembly, and finishing time, respectively. There are 100 hours available for electronics, 100 hours available for assembly, and 65 hours available for finishing per week. How many of each model should be produced each week if all available time is to be used.