

QUIZ 6 - MATH 112

Thursday, March 21

YOUR NAME: _____

George Voutsadakis

Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [6 points] A farmer wants to make three identical rectangular enclosures as in the diagram. If he has 1800 yards of fence available, what should be the dimension of **each enclosure** so that the **total area is maximized**?



2. [6 points] An airline executive calculates that in a regional route, when the ticket price is \$400, then 40 seats on average are occupied. She estimates that, every \$20 price reduction would lead to an additional demand of 4 seats. Let x denote the number of \$20 reductions the executive decides to make.

- Find a formula for the price $p(x)$ in terms of x .

- Find a formula for the number $s(x)$ of occupied seats in terms of x .

- Find a formula for the revenue $R(x)$ of the airline from the specific route.

- Help the executive decide which price to charge in order to maximize the airline's revenue from the specific route.