

QUIZ #6

MATH 142, Drost

Show all work!

Due at the beginning of class Thursday, Nov 12, 09

Name: _____

Section # _____

Seat # _____

1. Find the absolute extrema of $f(x) = -x^4 + 18x^2 - 15$ on the interval $[-1, 4]$.

MAX = MIN =

x	y

2. A hotel has 100 rooms and can rent all the rooms at a price of \$90 per night. Each time the rent for all rooms is raised by \$5, two rooms will become vacant. What rent should be charged to maximize the revenue?

ans:

3. A firm produces High Density TV's and sells each one for \$1500. The cost of producing x TV's per year is given by the equation: $C = 900 + 35x + 1.5x^2$. What is the maximum annual profit?

ans:

4. A 288 cubic inch aquarium is to have a square top. The sides are to be built of see-through glass and the bottom of mosaic. The cost per unit area of glass is three times the cost of mosaic. Find the dimensions of the aquarium having minimum cost.

ans:

5. Find all asymptotes of the function $f(x) = \frac{6x^2 + 21x - 12}{2x^2 + 2x - 24}$

6. Paddy's Playgrounds has an annual demand for 9600 playgrounds. Their supplier charges \$80 for each playground ordered, plus a shipping and handling charge of \$100 for each order filled. The Warehouse Around The Corner charges \$48 storage fee for each playground stored for a year. Let x represent the number of playgrounds ordered at one time.

a. Write an expression (in x) to represent the number of orders placed each year is:

b. Write an expression (in x) to represent the cost of one order is :

c. Write the function $C(x)$ which represents inventory costs:

d. How many playgrounds should be ordered at one time to minimize inventory costs?
