

MAC 2233-- Waner

Business Calculus

Chapter 5 Exam

(Fall 2019)

Take home part of the test.

Name _____

Date _____

Day/Time: _____

To receive credit for correct answers, supporting work **MUST** be provided. Answers without supporting work will receive no credit. This part of the exam is worth 24 points. Each problem is worth 8 points.

Solve the problem.

1) A hotel has 240 units. All rooms are occupied when the hotel charges \$100 per day for a room. For every increase of x dollars in the daily room rate, there are x rooms vacant. Each occupied room costs \$34 per day to service and maintain. What should the hotel charge per day in order to maximize daily profit? 1) _____

2) One airplane is approaching an airport from the north at 136 km/hr. A second airplane approaches from the east at 261 km/hr. Find the rate at which the distance between the planes changes when the southbound plane is 26 km away from the airport and the westbound plane is 17 km from the airport. 2) _____

3) Find the elasticity of demand E for the demand function $q = 18 - \ln p$. What is the elasticity when the price is \$5? What price should be charged to maximize the revenue? 3) _____