

Name: _____

Date: _____

MA 162

Week 4 Recitation Worksheet (Thursday)

You must show all work to receive full credit.

1. An online shop sells knitted hats and sweaters for cats. Each hat sells for \$10 and each sweater sells for \$22. The shop sold a total of 55 items last month, with sales totaling \$1,066. How many sweaters did the shop sell last month?

2. Jake's Surf Shop rents surfboards for \$11.75 plus \$3.25 per hour. Rita's rents them for \$8.00 plus \$4.50 per hour. Which is cheaper for which time intervals?

3. A contractor purchased a backhoe for \$40,000. Fuel and standard maintenance cost \$6.57 per hour, and the operator is paid \$14.98 per hour.
- (a) Write a cost function C for the cost of operating the backhoe for x hours. Make sure to include any fixed costs.

 - (b) If customers pay \$33.87 per hour for the contractor's backhoe service, write the revenue function R for the amount of revenue gained from x hours of use.

 - (c) Write the profit function P for the amount of profit gained from x hours of use.

 - (d) Use part (c) to determine the number of hours the backhoe must be used to break even.
4. The supply equation for a product is $x = 250p - 7500$ and the demand equation is $x = -110p + 11220$, where p is the price in dollars and x is the number of items. At what price will the supply equal the demand, and how many items will be produced at that price?