QUIZ 6 - MATH 112 Friday, March 16

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

1. A moving company would like to construct a rectangular open-top box having base whose length is twice as big as its width and volume 36 ft^3. Find the dimensions of the box that minimize the amount of materials used.

2. A party store sells daily 200 2-liter coke bottles for \$2.50 each. Each bottle costs the store \$0.50. The owner figured that for each quarter reduction in price the store can sell 10 more bottles daily. Let x be the number of quarter reductions that will be decided. Find the following:

   (a) The price p as a function of x.

   (b) The quantity q sold daily as a function of x.

   (c) The cost $C(x)$ as a function of x.

   (d) The revenue $R(x)$ as a function of x.

   (e) The profit $P(x)$ as a function of x.

   (f) Help the manager fix a price that will maximize the store's profit.