

Please solve the following problems by midnight on Sunday, July 17

**Excel:** Please submit the following problems on separate worksheets named Q1, Q2, Q3 in workbook named "HW 8 Problems 1 – 3 Solutions".

**Question 1:** Using the concepts from Chapter 16 in the text, solve the following problem. The annual demand for a product equals  $500 - 3p + 10a^{0.5}$ , where  $p$  is the price on the product in dollars and " $a$ " is hundreds of dollars spent on advertising the product. The annual fixed cost of selling the product is \$10,000 and the unit variable cost of producing the product is \$12. Determine a price (within \$10) and amount of advertising (within \$100) that maximizes profit.

**Question 2:** Using the concepts from Chapter 17 in the text, solve the following problem. At the end of the year for each of the next 40 years, I'm going to put \$15,000 in my retirement fund. What rate of return on my investments do I need so that I will have \$2 million available for retirement in 40 years?

**Question 3.** Using the concepts from Chapter 18 in the text, solve the following problem. For the lemonade stand example in Chapter 16, "Sensitivity Analysis with Data Tables," use the Scenario Manager to display a report summarizing profit for the following scenarios:

Scenario	Price	Unit Cost	Fixed Cost
High cost/high price	\$5.00	\$1.00	\$65,000.00
Medium cost/medium price	\$4.00	\$0.75	\$45,000.00
Low cost/low price	\$2.50	\$0.40	\$25,000.00

**VBA:** Please submit this in a workbook cleverly named as "HW 8 Problem 4 Solution". Please refer to chapter 11 in the VBA for Modelers text when solving this problem

**Question 4.** Create a user form that contains the usual OK and Cancel buttons. It also should contain two sets of option buttons, each placed inside a frame. The captions on the first set should be "Baseball", "Basketball", and "Football". The captions on the second set should be "Watch on TV" and "Go to games". Then write the event handlers and code in a module so that when the program runs, the user sees the form. If the user makes a couple of choices, clicks on OK, he/she should see a message like, "Your favorite sport is basketball, and you usually watch on TV." If the user clicks on Cancel, the message "Sorry you don't want to play" should appear.