You run a small furniture business. You sign a deal with a customer to deliver up to 400 chairs, the exact amount to be determined by the customer later. The agreed upon price is $90 per chair for up to 300 chairs, and above 300, the cost will be reduced by $0.25 per chair (on the whole order) for each additional chair over 300 ordered. What are the largest and smallest revenues your company can make on this deal?

**Step 1:** Identity the quantity to be minimized/maximized. Give that quantity a name (letter) and state its units.

**Step 2:** Sketch if possible or otherwise think about the problem to try to grasp it. This could include rereading the problem and recording any relevant facts or formulas.

**Step 3:** Identify the quantities that are varying, and name them (with letters) and units. (If there are other unknown quantities that are constant, note that fact!). Note relationships between them (if any).

**Step 4:** Try to write a formula describing the quantity in Step 1 as a function of the quantities in Step 3. Note the domain!

**Step 5:** If your formula in Step 5 has more than one input variables, try to find a relation between them that will help you eliminate one of them. This usually involves re-reading the problem, looking for a clue.

**Step 6:** Once you have a formula for a function to be minimized/maximized, use the techniques of 4.2 to find the global max/min. Be sure to think about the domain of the function and justify all steps with the first and/or second derivative test. ["I graphed it on my calculator and used the max (or trace) feature” is not sufficient!]

**Step 7:** Be sure to go back and make sure you are answering the correct question, and have included units. Does it make sense?