First Exam

Write all answers in your blue book and show all work there. Return your exam in your blue book.

17 pts.
1) a) Draw a well-labeled diagram that shows a profit maximizing P and Q.
   b) Briefly justify the shapes and slopes that you gave your curves in the diagram.
   c) Now use the part a diagram to identify the TR maximizing Q and describe the problem that we worked where maximizing TR was a plausible goal.

12 pts
2) \( Q_D = 100 - 3P \) and \( TC = 500 + Q + .01Q^2 \) Find the profit maximizing P and Q.

20 pts.
3) \( \ln Q = 100 - 3\ln P \)
   a) What is the price elasticity of demand.
   b) Use calculus to show this.
   c) If P is 10, what is MR?
   d) If MC = 2, what is the profit maximizing P?

17 pts.
4) If \( P = 80 - 10Q^{1/2} \) and \( TC = 100 \ln(Q+1) \)
   a) Find equations for MR and MC.
   b) Use the solver to find profit maximizing P & Q.

17 pts.
5) a) If P = 20 and MC = 10 and e = 3 (or -3), do we have the profit maximizing price? Why?
   b) Draw a well-labeled diagram where we have an isoelastic demand increase and these figures before the increase.
   c) Does the demand increase in your diagram make 20 the profit maximizing price? Why?

17 pts.
6) Your choice: chose a type of price discrimination, say what it’s called and draw a well-labeled diagram that shows how it provides more profit. Briefly describe an example of where this is or has been done.

I have neither given nor received unfair aid on this test nor am I aware of anyone else who has.