

First Exam

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

18 pts

Suppose that the supply of oranges is infinitely elastic at a 5 dollar price and that initially demand is given by $Q_D = 1000 - 20P$.

- Draw a well-labeled diagram of supply and demand and show the equilibrium price and quantity. Calculate the quantity and put it in the diagram.
- Now suppose that the government pays a \$1 per orange subsidy to the farmers. Identify the effect on the market price and quantity and show them in the diagram, taking care to identify both the price to the sellers and buyers.
- How much of the subsidy goes to the farmers in part b? Explain.

24 pts

- Write the new demand equation if we start with $Q_D = 100 - 5P$ and a sales tax of \$5 is imposed on the market.
- Find the level of minimum AC if $TC = 20 + 2Q + .5Q^2$ and $MC = 2 + Q$.
- Use derivatives to graph $P = -10 + 8x + 3x^2 - .5x^3$.

16 pts

- In the time it takes to change the oil in his car, W can clean 2 rooms in his house. JK, is slow at oil changes (doesn't like to get his hands dirty), so his opportunity cost of an oil change is 4 clean rooms.
 - Create your own table of time requirements for each individual for each job, taking care to make your numbers consistent with the information above. For the figures that you devised, say who has absolute advantage in each task.
 - Will W and JK trade if the price of an oil change is 3 clean rooms? Explain.

16 pts

- Jack consumes X and Y such that his $MRS_C (=MV) = -2$, while the $MRS_E = -P_X/P_Y = -1$. Jill consumes X and Y such that her $MU_X/P_X = 2$, while her $MU_Y/P_Y = 1$. Which person, if either, can improve utility by shifting consumption toward X. Explain.

16 pts

5) Draw a well-labeled diagram showing that real income calculated with a Laspreyes index tends to understate the standard of living.

10 pts.

6) Provide one reason why we think that indifference curves for goods are convex.

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