

First Exam

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

20 pts.

- 1) Suppose that  $Q_D = 50 - 5P$  and  $Q_S = -40 + 10P$
- Solve for the equilibrium and draw a well-labeled diagram that shows it.
  - Now suppose that there is an excise tax of \$1. Will the market price go up that much? Why? Show this in the diagram.
  - Find the price that the seller gets if we have this tax.

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20 pts.

- 2) Suppose that Frank's opportunity cost of good A is 2 units of good B and Francis's opportunity cost of good A is 1 unit of good B.
- If they trade, who will sell good A? Why?
  - How much will A's maker have to get to benefit from the trade?

	Hour Needed per unit	
	A	B
Frank	20	10
Francis	10	10

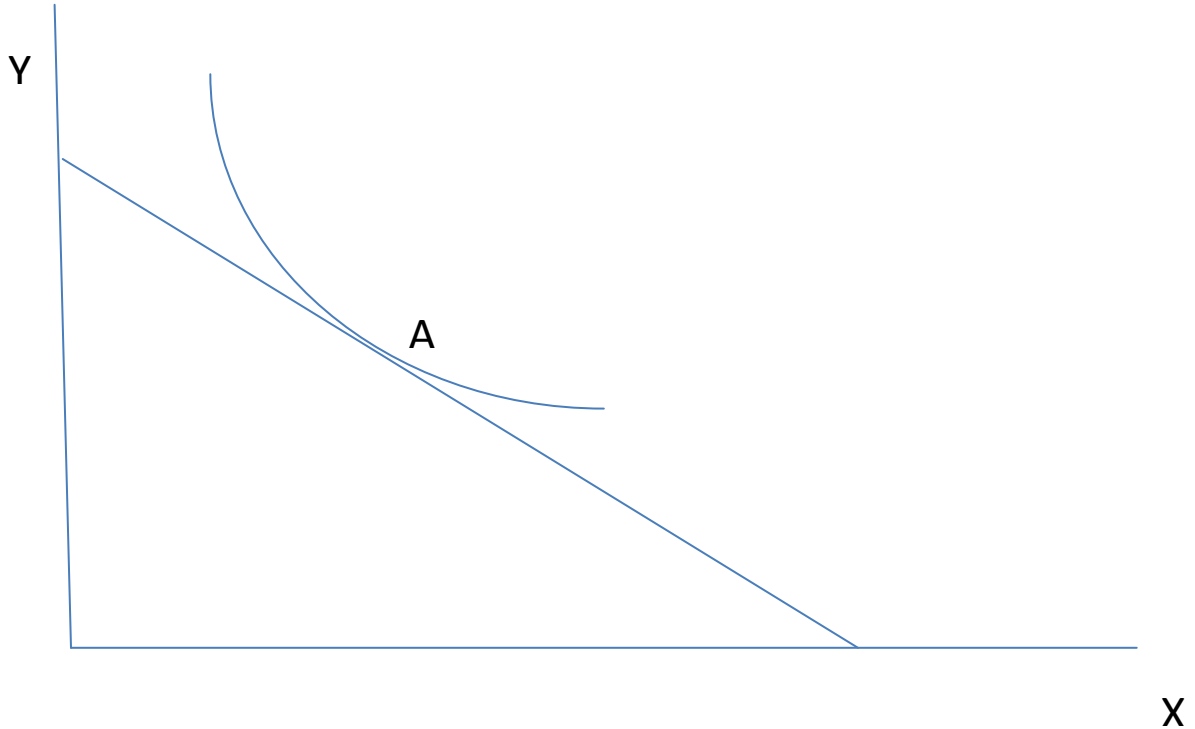
- Are the given opportunity costs right for the table above? Show this.
- Pick a price for A that will be mutually beneficial and use the numbers in the table to show this.

20 pts.

3) a) Draw a new budget line in a copy of the diagram where  $P_X$  is higher and  $P_Y$  is lower and point A (the tangency) is still just exactly affordable.

b) What happens to real income in this case? Explain. What kind of price index have you assumed is used?

c) What happens to the utility maximum in your diagram? Explain and say what this illustrates about the bias inherent in price indices and real income.



20 pts

4) Use a utility diagram to derive the compensated and uncompensated demand curves for an inferior good.

20 pts.

5) a) If  $U = 20X - X^2$ , draw a well-labeled diagram using calculus to find any extremes or inflection points.

b)  $TR = P \cdot Q$ , use the product rule to show that  $MR < P$  and use a demand diagram to illustrate the changes of TR due to a change of price.

I have neither given nor received unfair aid on this test.

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