

Instructions: This is a team assignment, so turn in one paper per team. Due 10/8/19.

- (10 pts.) Your cousin can't decide what to do with her life. Having just gotten a smart phone and downloading the Uber and Lyft apps, she explores becoming a contract driver for one of these taxi services. She comes up with the following information:
 - If she works full time, she can generate \$100,000 in revenues each year.
 - She would have to buy a suitable car, which would cost her \$25,000.
 - Annual operating expenses for such a car, such as gas, oil, and maintenance, would come to \$15,000.
 - Other operating expenses like taxes, insurance, and licenses, would cost \$5,000 annually.
 - To buy the car, she would have to take the money out of her savings, where it was earning 6%.
 - Wear and tear on the car would cause its market value to decline by \$5000 per year each year she drives for Lyft or Uber.
 - Having just graduated from college last May, she has already turned down several jobs paying \$50,000 per year.

Help her evaluate the annual economic profitability of becoming a contract driver for Uber or Lyft. Explain your reasoning and help her decide what to do.

- (15 pts.) Your parents are considering opening a pancake restaurant in a beach resort community along the southern Atlantic coast. They ask you to research the production function relationship between the two key inputs, labor and capital, and the number of meals produced per day. The table below contains the results of your research:

		Labor Input				
		1	2	3	4	5
Capital Input	1	40	80	110	130	150
	2	80	120	150	170	180
	3	110	150	180	200	210
	4	130	170	200	220	230
	5	150	180	210	230	240

Per unit-prices for labor and capital are $w = \$40$ and $v = \$40$. For this particular production function, when both input prices are the same, the long-run least-cost combination of inputs occurs where $K = L$. Using this information, graph five points on this firm's long-run average cost curve in the attached diagram. If the market is big enough to support several restaurants like the one they are considering, what size restaurant would you recommend that they build? (In other words, what level of K , where K can be thought of as the flow of capital services per hour embodied in different-sized restaurants?) Explain your answer, using concepts of economies and diseconomies of scale and MES.

- (10 pts.) Your parents decide to choose $K=3$, and build and equip a restaurant of that size. In the short run, they are stuck with $K=3$ in making short-run production decisions. Most of the year

they produce and serve 170-190 meals per day, and seem pretty happy. During the coldest winter months, however, when they are only serving slightly more than 100 meals per day, they gripe about their costs. On peak-demand holiday weekends when they are serving over 200 meals per day, they also gripe. In your diagram, plot three points on their SRATC curve corresponding to outputs of 110, 180, and 210 and explain their griping, even though they don't regret their decision to build the size restaurant they did.

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