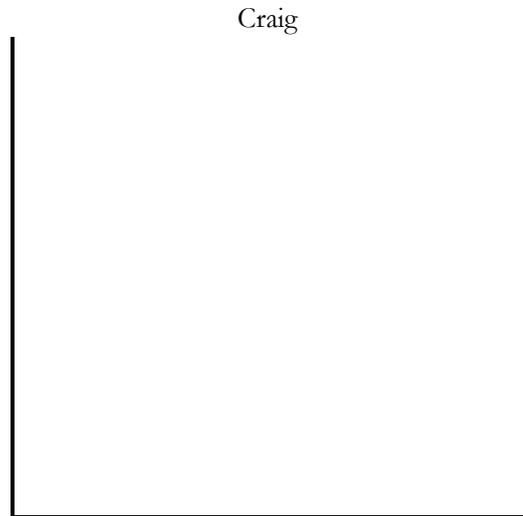
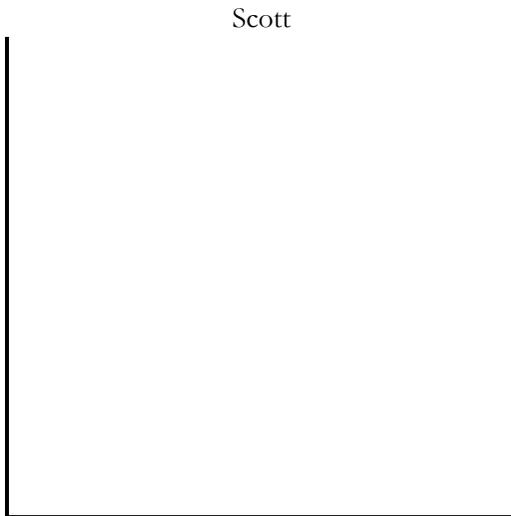
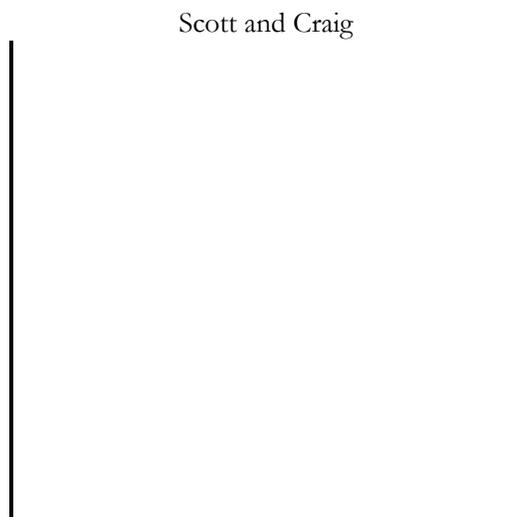


Principles of Microeconomics (200-level course)

1. Scott and Craig work part time making balloon animals at restaurants and bars. In one hour Scott can make 80 balloon dogs or 50 balloon monkeys or some linear combination of the two. In the same amount of time Craig can make 120 balloon dogs or 97 balloon monkeys or some linear combination of the two.
 - a. Graph the production possibilities frontiers of Scott and Craig on the axes given, with balloon dogs on the horizontal axis and balloon monkeys on the vertical axis.



- b. Now graph the aggregate production possibilities frontier—the boundary of the set of all possible combinations of balloon dogs and balloon monkeys that Scott and Craig can make by working together for one hour (again, with balloon dogs on the horizontal axis and balloon monkeys on the vertical axis).



- c. Scott and Craig are hired to make balloon dogs and monkeys for one hour at a party. Two-thirds of the guests want only balloon monkeys, while the other third want only balloon dogs. Given the preferences of the guests, how many balloon dogs and balloon monkeys should Scott and Craig make together if they make them as efficiently as possible?

balloon dogs, combined

balloon monkeys, combined

- d. For the situation described in part (c), how many balloon animals of each type should Scott make, and how many of each type should Craig make? Why?

balloon dogs, Scott

balloon dogs, Craig

balloon monkeys, Scott

balloon monkeys, Craig

2. The residents of the town of Xtapolapocetl drink an above average amount of hot chocolate. Suppose that the quantity of hot chocolate drinks demanded (Q_D) and the quantity of hot chocolate drinks supplied (Q_S) each day in Xtapolapocetl are given by the equations:

$$Q_D = 10,000 - 1000P$$

$$Q_S = -5000 + 4000P$$

where P is the price of a hot chocolate drink in dollars.

- a. Graph the supply and demand curves below, carefully labeling the curves and axes.

Market for hot chocolate in Xtapolapocetl



- b. What is the market equilibrium price?

c. What is the market equilibrium quantity?

d. What is the producer surplus?

e. What is the consumer surplus?

Principles of Macroeconomics (200-level course)

3. Below is a schedule for the prices and quantities produced for hot chocolate, widgets, and knickknacks—the only three goods produced in the distant country of Xtapolapocetl—in 2012 and 2013.

	Quantities		Prices (in \$)	
	2012	2013	2012	2013
hot chocolate	23	19	1	1.5
widgets	12	18	2.5	2
knickknacks	15	12	1	3

- a. Fill in the table below, calculating the total GDP for Xtapolapocetl for 2012 and 2013, in both 2012 prices and 2013 prices.

	Using 2012 prices...		Using 2013 prices...	
	...and 2012 quantities	...and 2013 quantities	...and 2012 quantities	...and 2013 quantities
hot chocolate				
widgets				
knickknacks				
total GDP				

- b. Calculate the growth rate of *nominal* GDP from 2012 to 2013. Express your answer as a percentage and round to one decimal place.

nominal GDP growth rate from 2012 to 2013

- c. Calculate the growth rate of real GDP between the two years using 2012 prices as the fixed prices. Express your answer as a percentage and round to one decimal place.

real GDP growth rate using 2012 prices

- d. Calculate the growth rate of real GDP between the two years using 2013 prices as the fixed prices. Express your answer as a percentage and round to one decimal place.

real GDP growth rate using 2013 prices

4. The following equations describe an economy (where quantities are in billions of dollars):

$$C = 400 + 0.8Y_D$$

$$TA = 800$$

$$EX = 150$$

$$I = 100$$

$$TR = 500 + 0.05Y$$

$$IM = 250$$

$$G = 480$$

Remember that $Y_D = Y - TA + TR$ and that in equilibrium $Y = AE = C + I + G + EX - IM$.

- a. What is the equilibrium level of output (Y) for this economy? Show your work.

equilibrium level of Y

- b. What is the value of consumption spending (C) at the equilibrium level of output (Y) for this economy? Show your work.

equilibrium level of C

5. Assume that in the country of Zaniah the level of employment (e) in a given month is 5,237,920. If the unemployment rate (u_r) is 5%, what is the level of unemployment (u) for that month? Be as exact as possible and show your work.

[Hint #1: remember the relationship between u_r , e , and u . Hint #2: the answer will be a whole number—no fraction will be involved.]

unemployment level (u)

6. Which of the following has a higher present value?
- getting \$100 one year from now when the prevailing interest rate is 20%
 - getting \$100 two years from now when the prevailing interest rate is 10%

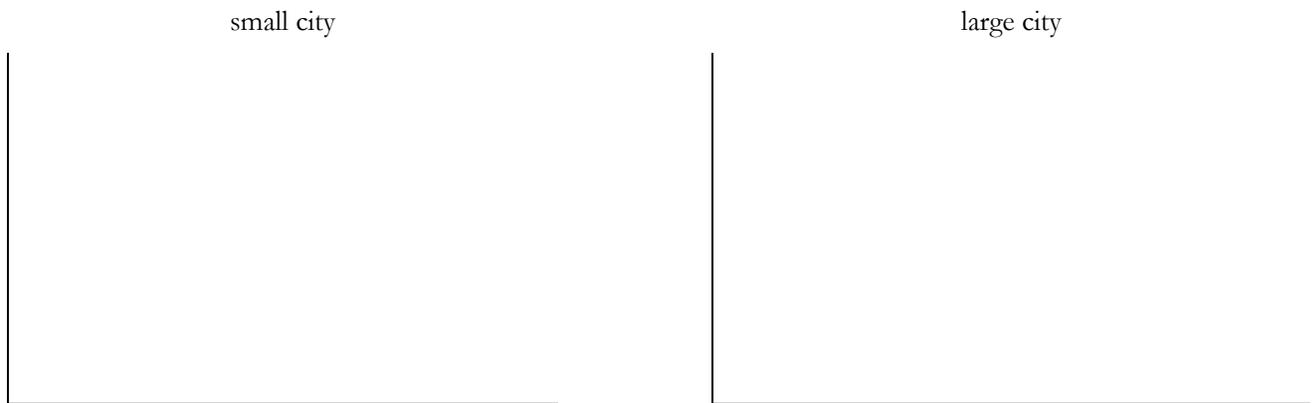
$$PV = \frac{F}{(1+r)^t}$$

- A. \$100 in one year at an interest rate of 20%
B. \$100 in two years at an interest rate of 10%
C. They have the same present value.
7. Solve for \bar{r} by guessing, checking, and adjusting your guesses using a spreadsheet.

$$1200 = \frac{100}{(1+\bar{r})^1} + \frac{100}{(1+\bar{r})^2} + \frac{400}{(1+\bar{r})^3} + \frac{500}{(1+\bar{r})^4} + \frac{500}{(1+\bar{r})^5}$$

Introduction to Urban Economics (300-level course)

8. Mr. Mullett runs a traveling carnival that hires local workers in each city it visits. The demand for carnival activities is uncertain. At the end of the year Mr. Mullett reviews his financial records and discovers some puzzling differences between his experiences in small and large cities:
- i. He always paid the same wage in large cities (\$10), but paid different wages in small cities (either \$8 or \$12).
 - ii. He always hired the same quantity of labor in small cities (30 workers) but different quantities in big cities (either 20 or 40 workers).
- a. Using Figure 3-3 (seen in the book or in lecture 5) as a model, illustrate the carnival's employment of workers with two graphs, one for the typical small city and one for the typical big city. Assume that the demand curves for labor are linear and parallel, with vertical intercepts of \$18 (high demand) and \$14 (low demand).



- b. In the typical big city with high demand, profit is _____. (Show your work.)
- c. In the typical big city with low demand, profit is _____. (Show your work.)
- d. In the typical small city with high demand, profit is _____. (Show your work.)
- e. In the typical small city with low demand, profit is _____. (Show your work.)
- f. Assume that in either size of city the demand for Mr. Mullett's carnival is high with probability 40% and low with probability 60%. Given these probabilities, the expected profit is _____ in a big city and _____ in a small city. (Show your work.)

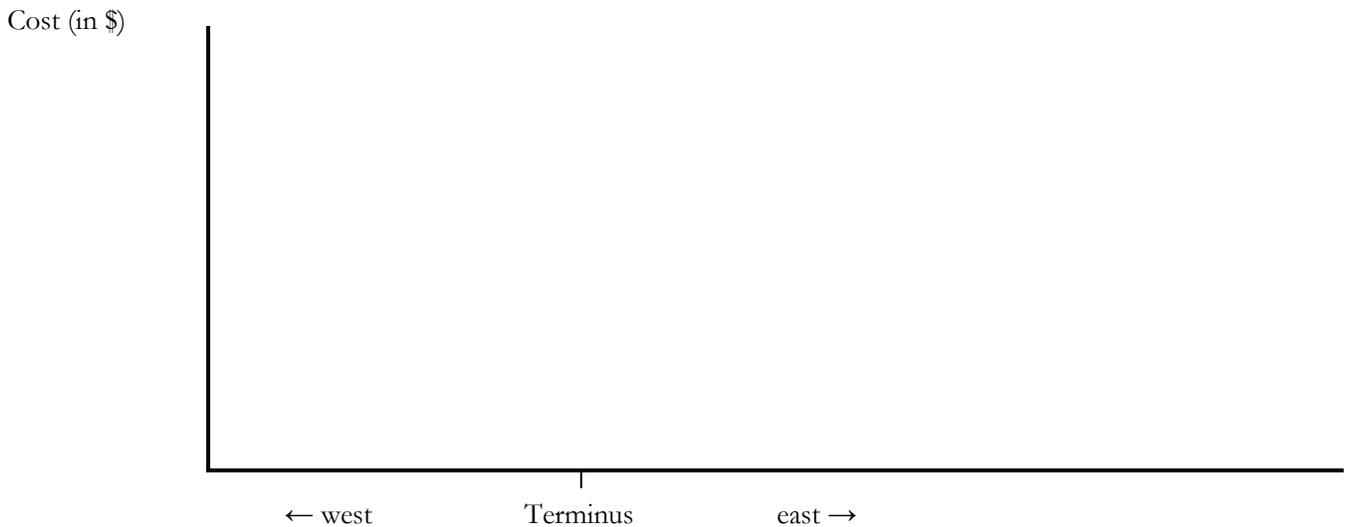
- g. What would the probability of high demand have to be for the expected profit in the big city to be exactly the same as the expected profit in the small city? Why?

probability of high demand needed

9. The city of Terminus lies at the western end of a rail line. To the east are a hundred miles of wide plains along which there are several towns—all connected to Terminus by the rail line. To the west of Terminus are fifty miles of mountains, whose small villages are connected by a few winding dirt roads.

The only factory in the region is in Terminus. It produces widgets at a cost of \$10 per unit at the factory door. Thanks to the rail line, the transport cost to anywhere east of Terminus is \$0.10 per mile. Given the poor state of the roads through the mountains, the transport costs to anywhere west of Terminus is \$0.50 per mile.

- a. Graph the costs of widgets produced throughout the entire 150-mile region. Carefully label the costs at the factory, at the far western end of the region, and at the far eastern end of the region.



- b. Assume that the cost of making a widget at home is \$18. What is the market area for the factory? (That is, how many miles west of Terminus will it stretch, and how many miles east of Terminus will it stretch?)

number of miles to the west of Terminus

number of miles to the east of Terminus

10. Suppose that a household resides in an urban area at a distance of 5 miles from downtown. The household occupies a residential lot measuring 5000 square feet, and at this distance from downtown land rent is \$2.00 per square foot per year.

One of the members of the household must commute to downtown for work five days a week (50 weeks per year). The total cost of this commuting (counting time costs as well as monetary costs) is \$5.00 for each work day.

a. How much is the household currently paying in land rent per year? Show your work.

land rent per year

b. How much is the household currently paying in commuting costs per year? Show your work.

current commuting costs per year

c. Assume that the per-mile cost of commuting is everywhere the same (i.e., it's the same cost to travel a mile either near downtown or on the outskirts of town). How much would the household's annual commuting costs be if they lived 4 miles from downtown or 6 miles from downtown? Show your work.

commuting costs per year living 4 miles from downtown

commuting costs per year living 6 miles from downtown

d. Assume that land rent is \$2.50 per square foot four miles from downtown and \$1.67 six miles from downtown. If the household rented a lot of exactly the same size as they currently do, how much would their land rent be per year if they lived 4 miles from downtown or 6 miles from downtown? Show your work.

land rent per year living 4 miles from downtown

land rent per year living 6 miles from downtown

e. Assuming that land rent and commuting costs are the only factors being considered by this household, is living five miles from downtown a locational equilibrium for this household? Why or why not? If not, should they move closer to or farther from downtown?

Introduction to Behavioral Economics (300-level course)

11. Arriving in Reno, Nevada, for a brief vacation, Anthony decides to find a room for the night in one of the local motels (while they all still have vacancies). He has reference-dependent preferences over the quality of lodging (L) and money (Y) according to the following utility function:

$$U(L, Y; R_L, R_Y) = v(4L - 4R_L) + v(Y - R_Y)$$

$$\text{where } v(x) = \begin{cases} \sqrt{x+1} - 1 & \text{if } x \geq 0 \\ x & \text{if } x < 0 \end{cases}$$

The day before, Anthony saw an online quote for one local motel for \$63 per night. With that in mind, and given that he's seeking a relatively low quality motel, his reference points are $R_L = 6$, $R_Y = -63$. After a brief search he finds two motels. The first, M_1 , offers a quality of 12 for a price of \$83 per night (i.e., $L_1 = 12$ and $Y_1 = -83$). The second, M_2 , offers a quality of 3 for a price of \$55 per night (i.e., $L_1 = 3$ and $Y_1 = -55$)

- a. What would Anthony's utility be for staying at M_1 ? Show your work.
- b. What would Anthony's utility be for staying at M_2 ? Show your work.
- c. At which of these two motels would he prefer to stay for the night? Why?

- d. Anthony's alternative to staying in a motel is sleeping in his car (which he has been known to do from time to time). This would yield $L_0 = 0$ and $Y_0 = 0$. Given his current reference points for quality of lodging and money would he prefer sleeping in his car to staying at M_1 ? Show your work.
- e. Would he prefer his car to M_2 ? Show your work.
- f. As Anthony is contemplating his options he finds that he has received a parking ticket for \$39. Assuming that his reference points in quality of lodging and money remain the same (namely, $R_L = 6$ and $R_Y = -63$), how does this negative shock affect the rank ordering of his lodging preferences between M_1 , M_2 , and his car? Show your work.