

Directions: Answer all of the following questions on your own paper and turn them in at the **start of class on Wednesday, October 9th**. You may discuss the questions with your classmates. However, you must turn in your own set of answers that reflect your work.

1. (9 points) Sam has \$7 to spend on apples and bananas and wants to maximize his utility on the purchase. Apples cost \$1.00 each, and bananas cost \$0.50 each. The following table provides data on Sam's preferences.

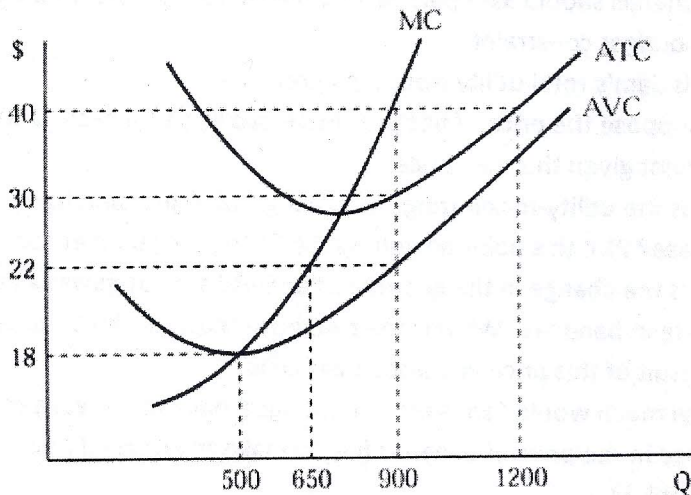
Apples: \$1.00		Bananas: \$0.50	
Quantity	MU	Quantity	MU
1	28	1	14
2	24	2	12
3	20	3	8
4	16	4	6
5	12	5	4
6	8	6	2
7	4	7	0
8	0	8	0

- a. Draw a graph of Sam's budget constraint. Appropriately label all lines and points, and both axes.
- b. Based on Sam's budget constraint and the information in the table, how many apples and bananas should Sam purchase to maximize his utility? Plot this point on your graph of the budget constraint.
- c. What is Sam's total utility from the purchase?
- d. Now suppose the price of bananas increases to \$1.00 each. Graph Sam's budget constraint given this new price.
- e. What is the utility-maximizing combination of apples and bananas that Sam should purchase? Plot this point on your graph of the new budget constraint.
- f. What is the change in the quantity of apples Sam purchases as a result of this price increase in bananas? What is the change in the quantity of bananas that Sam purchases as a result of this price increase in bananas?
- g. By how much would Sam's income (budget) have to increase to compensate him for the increase in the price of bananas (i.e. to make the original utility-maximizing combination affordable)?
- h. Explain the substitution effect. Relative to the original bundle, calculate the change in the quantity of apples and the change in the quantity of bananas that Sam purchases as a result of just the substitution effect when the price of bananas increases.
- i. Explain the income effect. Using information from (f) and (h), calculate the change in the quantity of apples and the change in the quantity of bananas that Sam would purchase as a result of just the income effect when the price of bananas increases.

2. (4 points) Consider the following table of Candy's short-run costs of producing cakes.

Number of Cakes	VC	MC	AVC	FC	TC	ATC
0		--	--	50		--
1		30				
2						50
3			25			
4					155	

- Using information about the relationship between the cost curves, fill in the blank cells of the table above.
 - If Candy produces one cake, what is Candy's variable cost of production?
 - If Candy produces three cakes, what is her marginal cost of production?
3. (1 points) Explain the difference between economic costs and accounting costs. Can a firm's accounting profits ever be smaller than the firm's economic profits? Briefly explain.
4. (2 point) Consider a firm in a perfectly competitive market.
- What is the difference between the short-run and the long-run for the firm?
 - Why might it make sense for an unprofitable firm to operate in the short-run? Would it ever make sense for an unprofitable firm to continue operating in the long-run? Briefly explain.
5. (4 points) Consider the graph of a firm's short-run cost structure in a perfectly competitive market.



- If the market price is \$40, what is the firm's profit maximizing level of output?
- Calculate the firm's economic profit at the point identified in (a).
- Do you expect the firm to continue earning these profits in the long-run? Explain.
- What is the lowest the market price can fall before this firm decides to shut-down its short-run production? Explain briefly.