

Midterm Exam 2

You will have 50 minutes for this exam. Please write your answers neatly. Read the questions carefully and think clearly. Good luck!

Part I. Multiple Choice Questions (20 minutes)

1. Which of the following combinations is not on the consumer's budget line for movies and magazines if the price of movies is \$5, the price of a magazine is \$2.50 and the consumer's income is \$20.00?
- 0 movies and 8 magazines.
 - 2 movies and 6 magazines.
 - 3 movies and 2 magazines.
 - 4 movies and 0 magazines.

1. **b**

2 movies is \$10. 6 magazines is \$15.00

2. If a person's income doubles, then he will
- consume double the amount of goods he initially chose.
 - consume more of the most expensive good.
 - consume more of the least expensive good.
 - be able to afford more of all goods, but there is not enough information to be more specific.

2. **d**

The budget line would shift out. If both goods are normal goods, the consumer would buy more of both. If one good was inferior, then the consumer would buy more of the normal good and less of the inferior good. Without information about tastes or the indifference curves, you can't tell how the bundle will change.

3. To maximize satisfaction from a fixed money budget, a consumer buying products A and B wants to make sure that the marginal utility of the last dollar spent on A is
- as great as possible.
 - as low as possible.
 - the same as the marginal utility of the last dollar spent on B.
 - equal to the price of B divided by the marginal utility of the last dollar spent on B.

3 **c**

The consumer maximizes utility subject to a budget constraint by equating the ratio of the marginal utilities to the ratio of the prices. This is equivalent to c.

4. In indifference-curve analysis, when the price of one of the goods under consideration decreases, then the
- indifference curves will shift to the right.
 - slope of the budget line will change.
 - indifference curves will shift to the left.

- d. individual's total utility schedule will change. **4. b**

A change in the relative price of the goods will change the slope of the budget line.
Indifference curves are affected by a change in tastes not a change in prices.

5. If $MC > MR$, and marginal cost is rising, then
- output should be reduced.
 - marginal profit is positive.
 - there are losses.
 - output should be increased. **5. a**

If $MC > MR$, then the marginal benefit to the firm of the last unit produced is greater than its marginal cost and the firm would do better by not producing that unit.

6. An airline can profit by offering standby customers an unsold seat at a substantial discount just before takeoff because
- additional passengers are needed to balance the load.
 - the marginal cost of an additional passenger is very small.
 - additional passengers add little to fixed costs.
 - such passengers add more to profits than do those with reserved seats. **6. b**

The decision about how much to produce is driven by marginal cost. The marginal cost of an additional passenger when there are empty seats is likely to be very small. If the passenger is willing to pay a price greater than that MC, the airline should sell him/her a seat.

7. The specialization of jobs along an assembly line illustrates the concept of
- increasing costs when fixed costs are high.
 - decreasing costs as output expands.
 - constant costs at a range of output levels.
 - capacity output. **7. b**

With specialization, a firm is likely to experience increasing returns to scale which means average total cost will decrease as output expands.

8. The chronological time element in the distinction between *short run* and *long run* relates to
- how long it takes to produce the good.
 - how long it takes a firm to change its quantities of fixed inputs.
 - the time it takes for a customer to consume the good.
 - how long it takes for more labor to be hired. **8. b**

9. If a firm's $TR = \$1,000$, $TC = \$1,500$, and $TFC = \$600$, then
- the firm should shut down because of losses.
 - the firm should continue to operate with losses because it is covering its variable costs.
 - the firm should operate one more year and then shut down if losses continue.
 - the firm should continue to operate as long as $TR > TFC$. **9. b**

Since the question discusses FIXED COSTS, we know it is about the short run. In this situation, the firm loses \$500 by continuing to operate, but loses \$600 if it shuts down.

10. The "shutdown" process for the firm varies between the short run and the long run because
- in the short run, the firm compares TR to TVC; in the long run, the firm compares TR to TC.
 - in the short run, the firm finds $TR - TC$; in the long run, the firm compares TR to TFC.
 - in the short run, the firm shuts down if there are losses; in the long run, the firm operates if losses are less than TFC.
 - they make a "shutdown" decision only in the short run.

10. a

The firm shuts down, in the short run, if it can no longer cover its variable cost.

11. Suppose a firm sells its product at a price of \$10 to all customers. If $MR = MC$ at a level of output equal to 20 units, total costs equal \$300, and total variable costs equal \$160 at that level of production, then
- the firm will have losses and should shut down.
 - since fixed costs are covered, the firm should produce and sell 20 units.
 - the firm should expand production until average revenue exceeds average costs.
 - the firm should produce 20 units because average revenue exceeds average variable cost.

11.d

The firm if it produces its profit maximizing level of output loses \$100. If it shuts down, it would lose $\$300 - 160 = \140 .

12. Average fixed cost falls as output rises because
- firms become more productive as output rises.
 - the fixed cost is spread over more units of output.
 - firms receive discounts and other benefits that lower input costs as output rises.
 - firms shift to less expensive methods of production as output rises.

12.b

13. The principle that raising the quantity of an input eventually reduces its marginal product, if the quantity of some other input remains fixed is known as
- the law of diminishing returns.
 - decreasing returns to scale.
 - diseconomies of scale.
 - disutility.

13.a

14. The slope of an isoquant equals
- the negative of the relative price of one input in terms of the other.
 - the marginal rate of substitution in production between two inputs.
 - marginal cost divided by marginal revenue.

d. marginal revenue divided by marginal cost. 14.b

15. The perfectly elastic nature of the firm's demand curve under perfect competition means that
- a. the firm is a price taker.
 - b. the firm must lower its price in order to sell a larger quantity in the market.
 - c. marginal revenue is always negative.
 - d. the firm would sell a smaller quantity if it lowered its price. 15 a

16. When firms in a competitive industry are currently charging prices that exceed their production costs, the firms
- a. will earn long-run economic profit.
 - b. will face new competition, forcing price down to the per-unit cost of production.
 - c. will earn short-run economic profits that will be offset by long-run economic losses.
 - d. must not be price takers, or otherwise they would be unable to charge such high prices. 16.b

If there are losses, then firms will exit the industry in the long run. As they exit the industry, the shift in supply pushes prices up until there are again zero economic profits where $P=ATC=MC$.

17. The market price in a perfectly competitive industry in short-run equilibrium is \$3 and the minimum average cost for all firms is \$2.50. In the long run, we would expect an increase in
- a. each firm's output.
 - b. the number of firms.
 - c. each firm's profit.
 - d. each firm's average cost. 17._b
- There is positive economic profit so entry will occur.

18. An increase in demand will cause an increase in industry output in the long run because
- a. new firms enter the industry.
 - b. new firms enter the industry and all firms increase their output.
 - c. all firms decrease their output but more new firms enter.
 - d. no firms enter but the existing firms increase their output. 18._a

An increase in demand bids price up above the long run equilibrium (zero profit) price. Firms enter the industry. Entry shifts supply out to the right increasing industry output. Although each firm increases its output in the short run, in the long run each firm will operate at the minimum of the LRATC.

19. In the long run, in a competitive market, the price of a good is determined primarily by the
- a. per-unit costs of production.

- b. decision of buyers about how much they are willing to pay.
- c. elasticity of supply of the good.
- d. elasticity of demand for the good.

19.a

In the long run equilibrium, there is zero economic profit so $P=ATC$.

20. In an increasing-cost industry, if demand rises, then
- a. the number of firms rises, industry output rises, and the long-run equilibrium price remains constant.
 - b. the number of firms remains the same, but firm output rises, and the long-run equilibrium price rises.
 - c. the number of firms, industry output, and price all rise in the long run.
 - d. price and costs both rise, so that the number of firms and firm output remain constant.

20.c

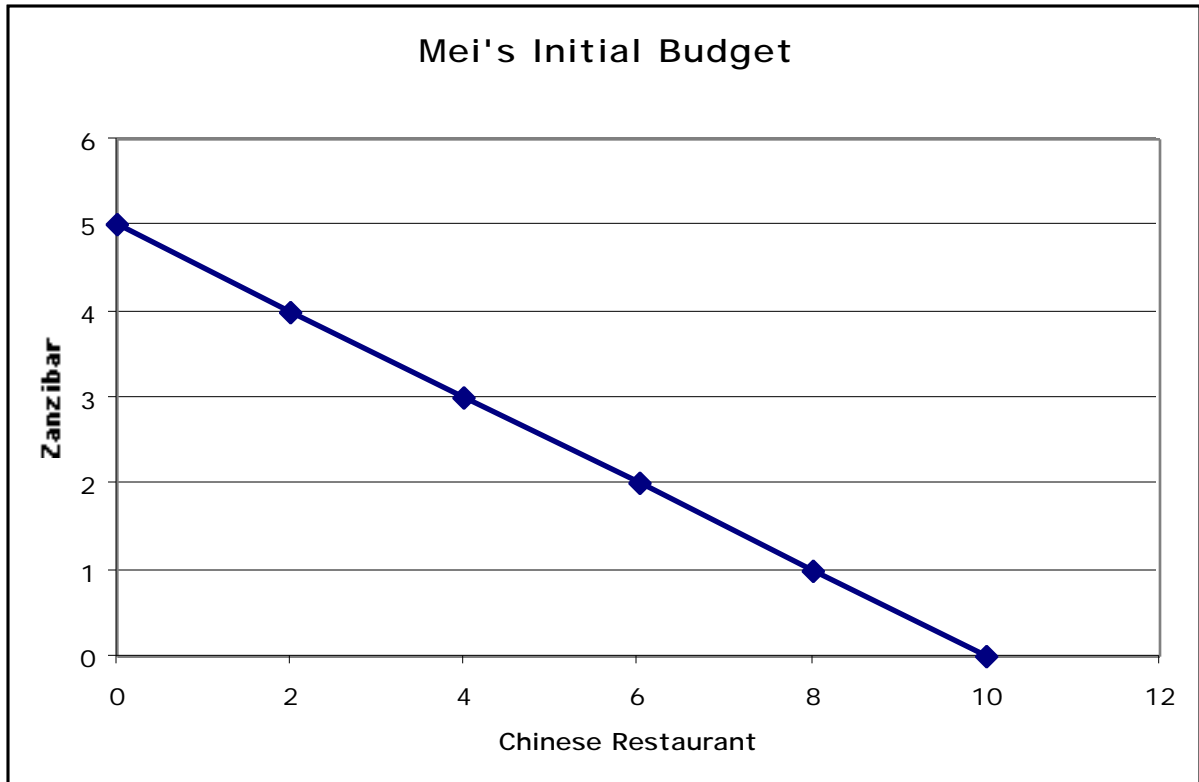
See textbook and lecture notes.

Part II. Critical Thinking Questions (24 minutes)

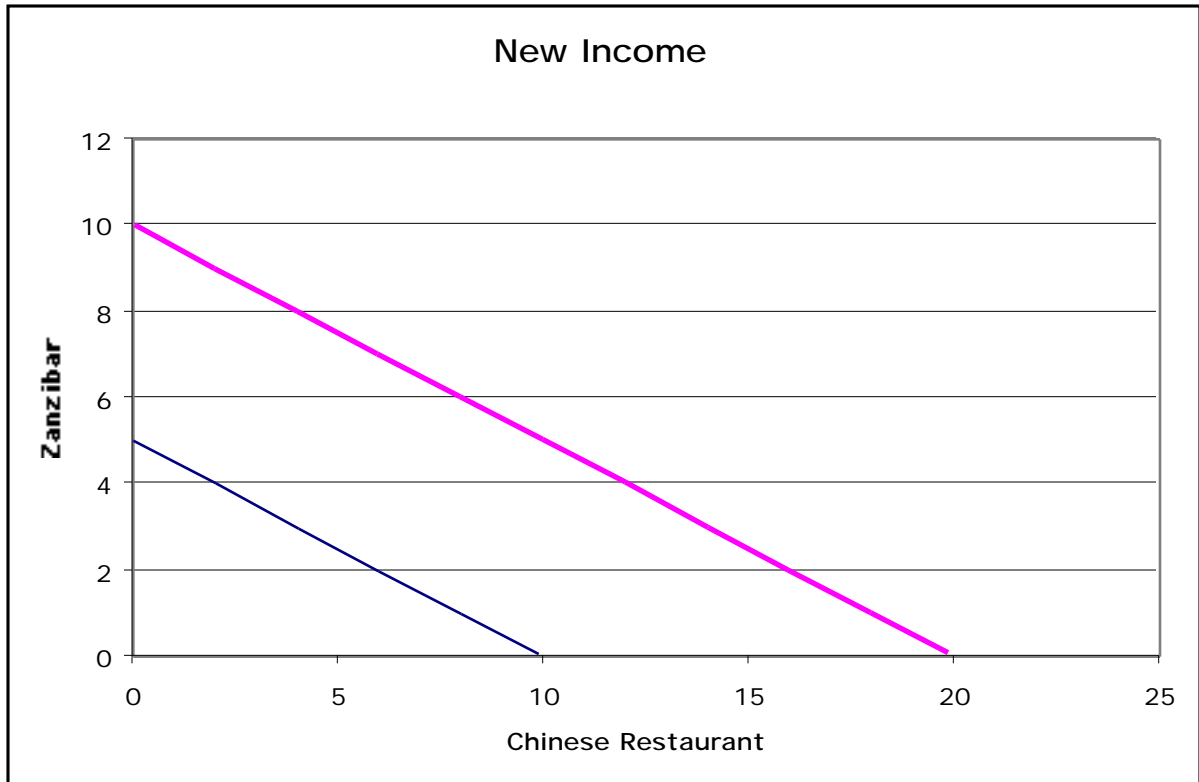
Write your answers in the space provided. Be sure to completely label any graphs.

1. (8 points) Assume that Mei has \$100 per month to divide between dinners at a Chinese restaurant and nights at Zanzibar, a local pub. Assume that going to Zanzibar costs \$20 and eating at the restaurant costs \$10. Suppose that Mei spends two nights at Zanzibar and eats six times at the restaurant.

- a) Draw Mei's budget constraint and show that she can afford six meals and two nights at Zanzibar (calculate how much this consumption bundle costs and illustrate with a diagram of her budget constraint and this particular consumption bundle).

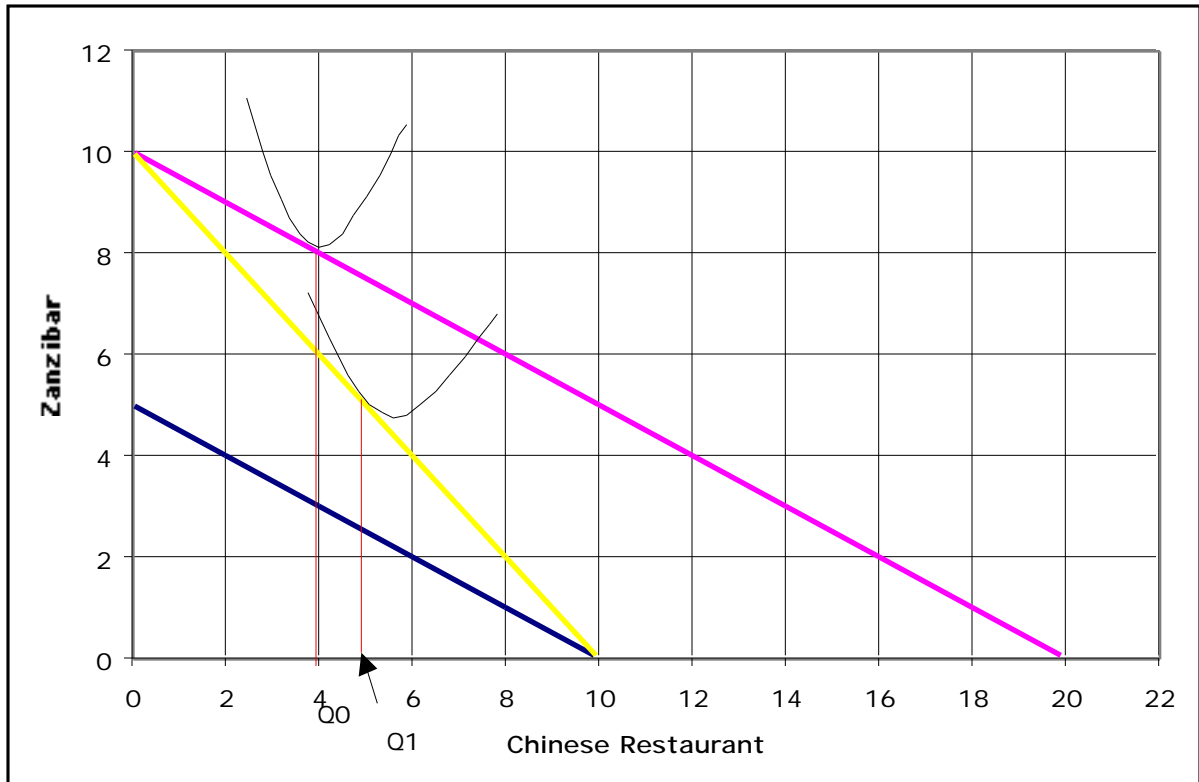


- b) Assume that Mei comes into some money and can now spend \$200 per month. As a result of the increase in income, Mei decides to spend eight nights at Zanzibar and eat at the restaurant four times. Draw her new budget constraint (be sure to label the intercepts with numerical values) and locate her new consumption bundle. What kind of a good is Chinese food? What kind of a good is a night at Zanzibar? Explain



Chinese food is an inferior good because following an increase in income, Mei consumes less. Zanzibar is a normal good because Mei increases consumption in response to an increase in income.

- c. Now suppose the price of eating at the restaurant rises to \$20 (holding income constant at \$200) and the income effect dominates the substitution effect. Will Mei now eat more or fewer meals at the restaurant than 4? Will Mei now spend more or fewer nights at Zanzibar than 8? Explain in words and with a diagram.



A Chinese restaurant meal is an inferior good for Mei. Following the price increase, she will buy less restaurant meals through the substitution effect as she substitutes toward the good that has become relatively cheaper. She will buy more restaurant meals through the income effect because her purchasing power has been reduced and restaurants are an inferior good. If the income effect dominates, Mei increases her consumption of restaurant meals and decreases her consumption of Zanzibar nights.

2. (6 points) The labor force participation rate of married women has more than doubled over the past 50 years. One economic influence on this rate was the increase in women's wages over this period. Another economic influence was the increase in men's wages, which raised the standard of living for most married women.

- a) Explain, using the income and substitution effects, why her labor supply might be upward sloping or might be downward sloping.

An increase in the wage rate is an increase in the opportunity cost of leisure. As the price of leisure increases, the substitution effect dictates that a woman will substitute away from leisure towards market goods because leisure has become relatively more expensive. As she reduces leisure, she increases hours worked. On the other hand, the income effect suggests she will reduce hours worked following a wage increase. An increase in the wage increases her purchasing power. If leisure is a normal good, she will purchase more leisure and hence, work

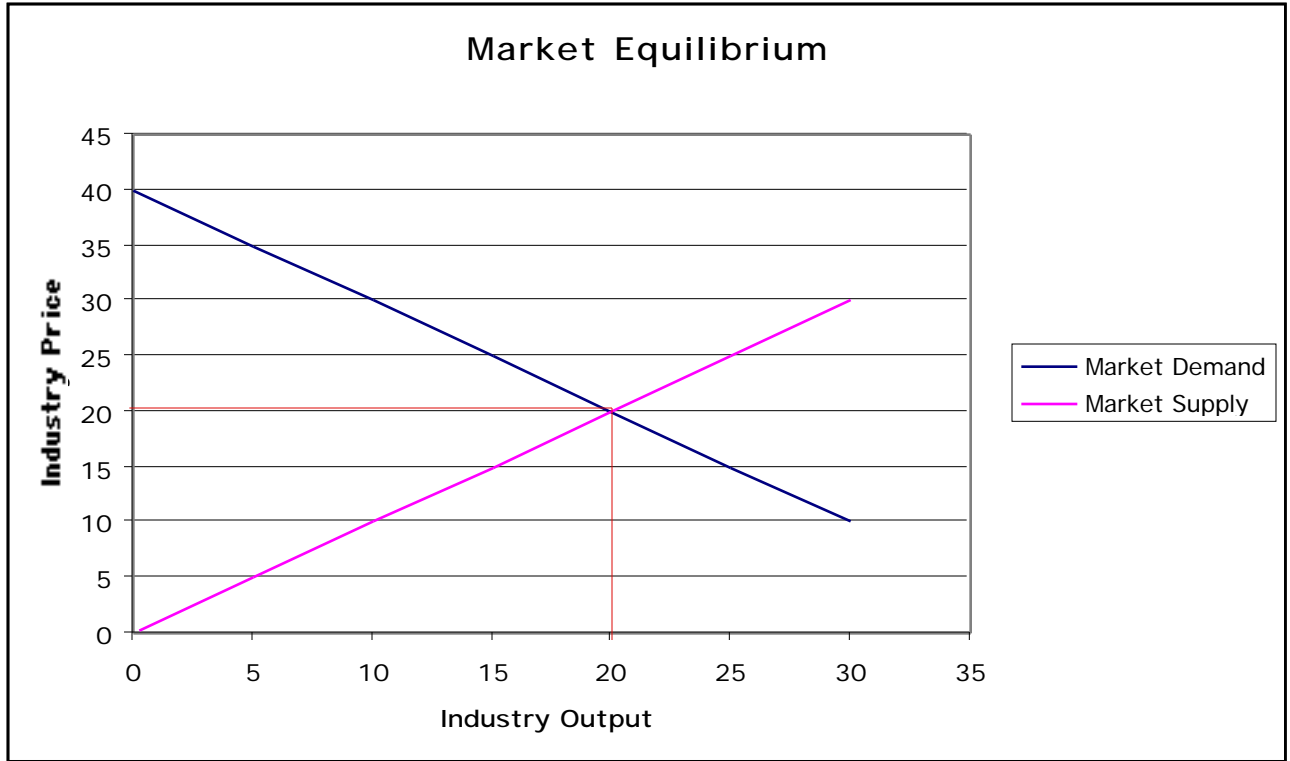
less. If the substitution effect outweighs the income effect, her labor supply curve will slope up. If the income effect outweighs the substitution effect, her labor supply will slope down.

- b) Explain how a rise in the income of a husband can lead to a fall in the number of hours worked by his wife. What assumption do you need to make about leisure to get this result?

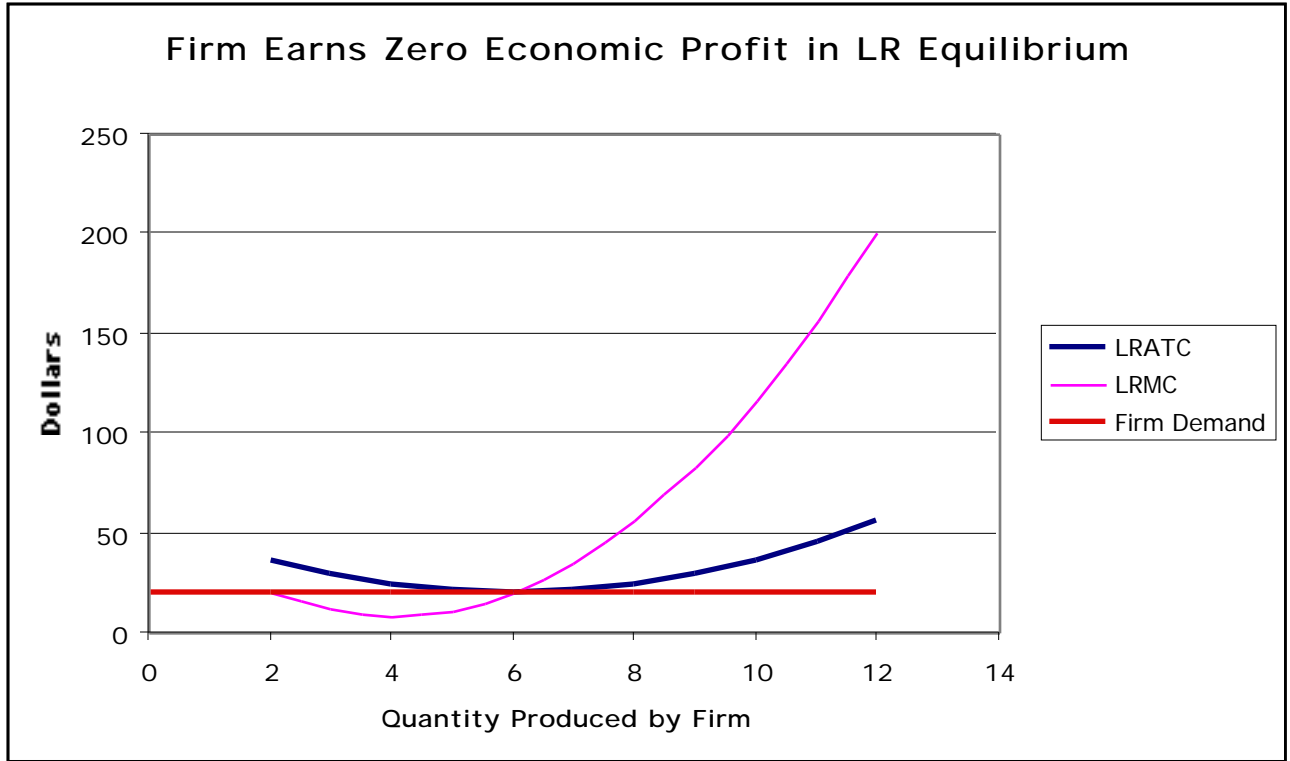
An increase in husband's income increases nonlabor income for the wife. Her purchasing power (or the family's) is increased. If leisure is a normal good, she will consume more leisure. If she consumes more leisure, she reduces hours worked.

3. (10 points) Assume that the gold mining industry is competitive.

- a) Illustrate a long-run equilibrium using diagrams for the gold market and for a representative gold mine. Explain your illustrations in a sentence or two as well.

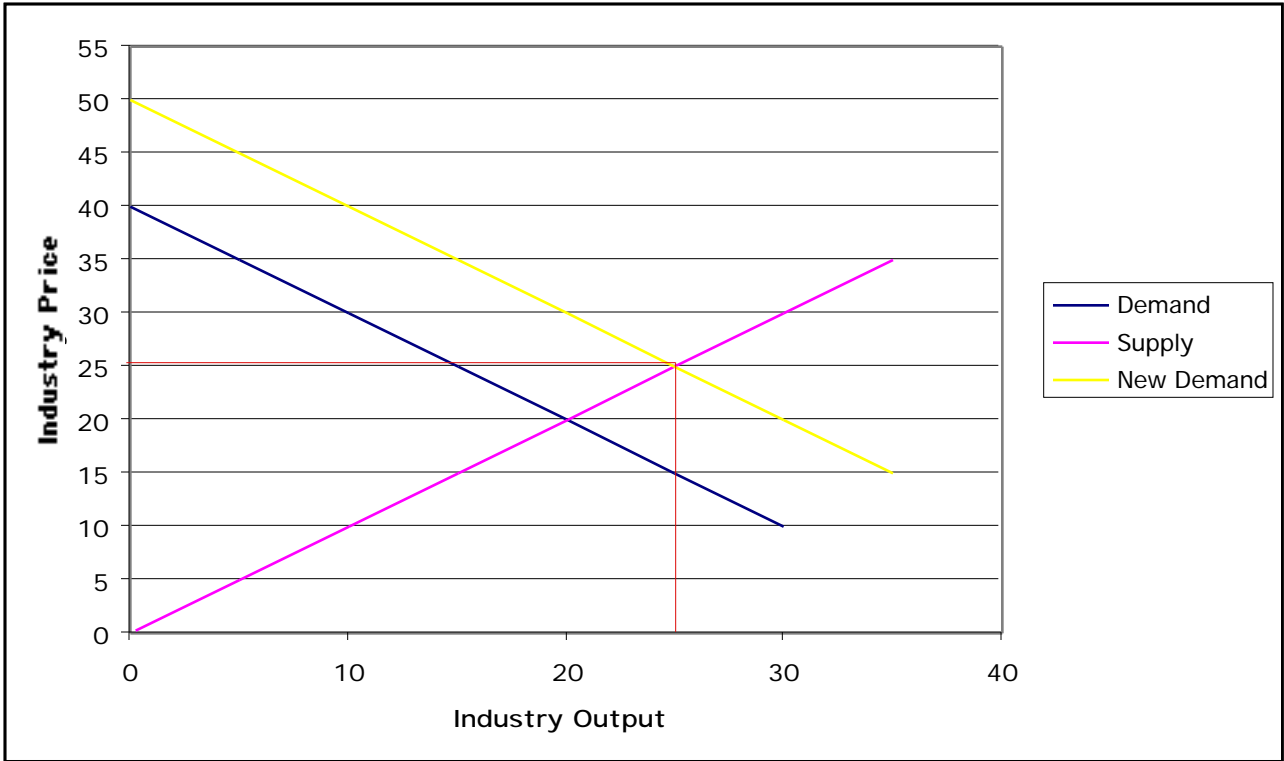


The market equilibrium occurs where supply equals demand. A price of \$20 is a long run equilibrium if the firm earns zero economic profit.

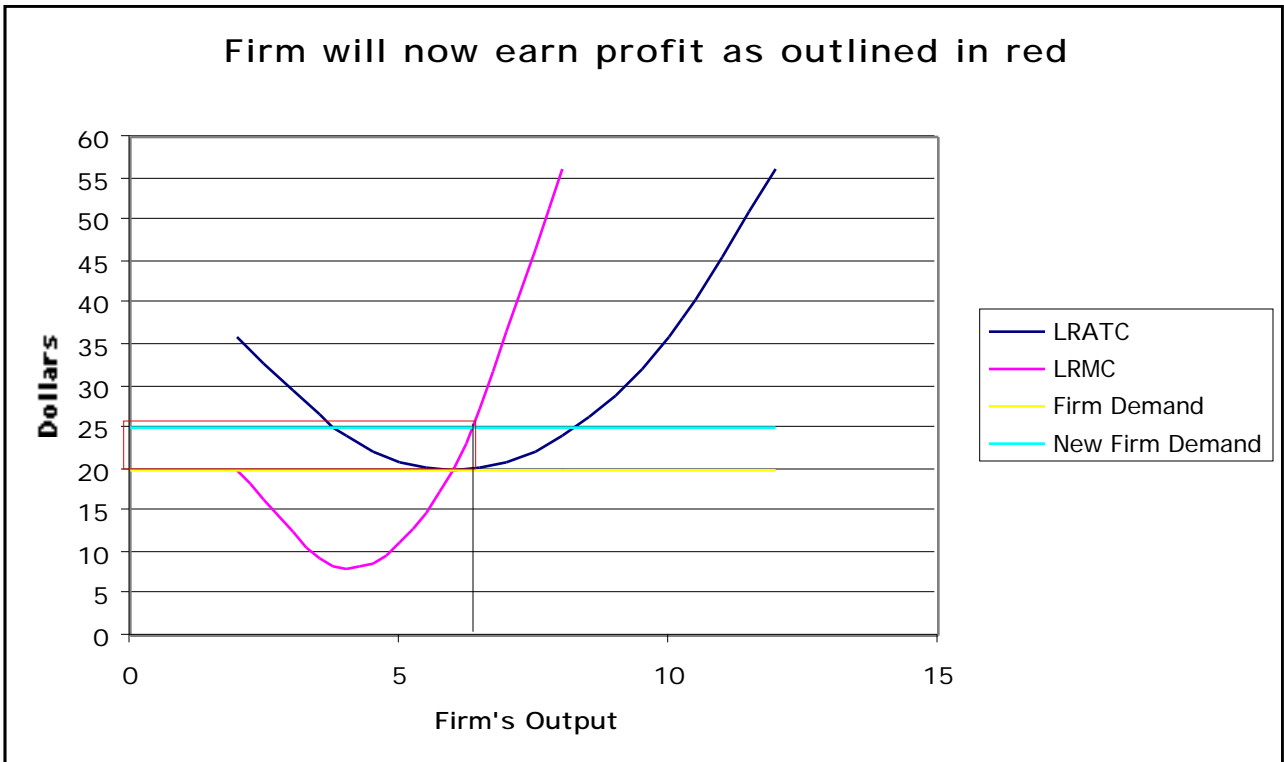


- b) Suppose that an increase in jewelry demand induces a surge in the demand for gold. Using your diagrams, show what happens in the short run to the gold market and to each existing gold mine.

Market price will increase (to 25 in my graph). Industry output will increase. Firm's demand will shift up.

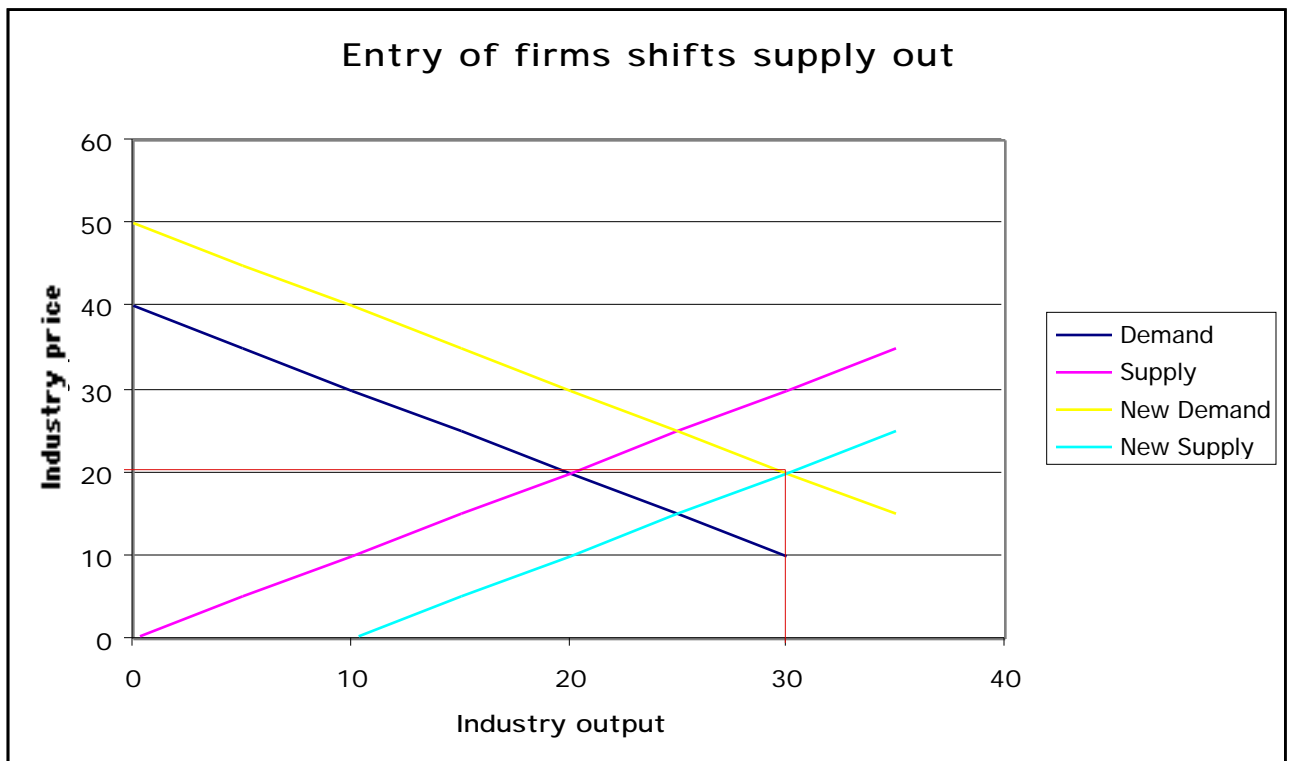


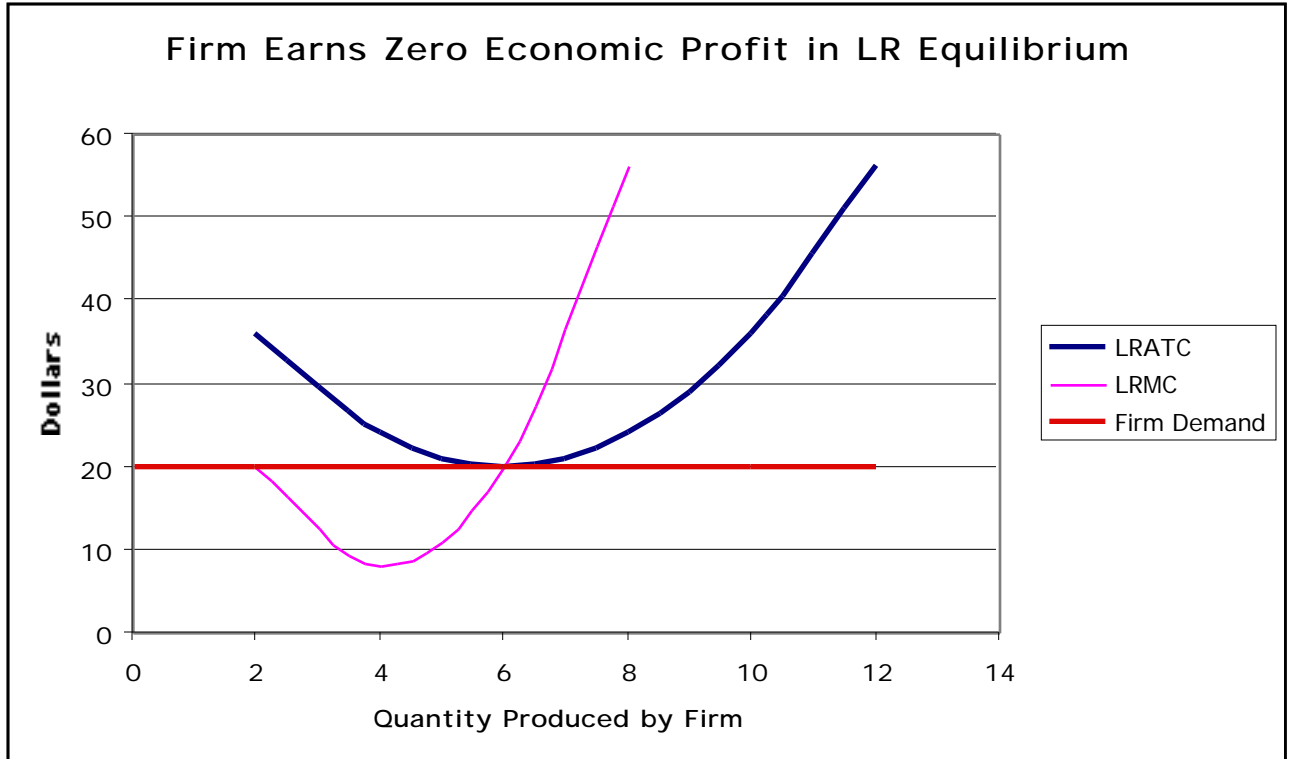
Firm will now earn profit as outlined in red



- c) If the demand for gold remains high, what would happen to the price over time? Provide a general explanation in words and illustrate with diagrams.

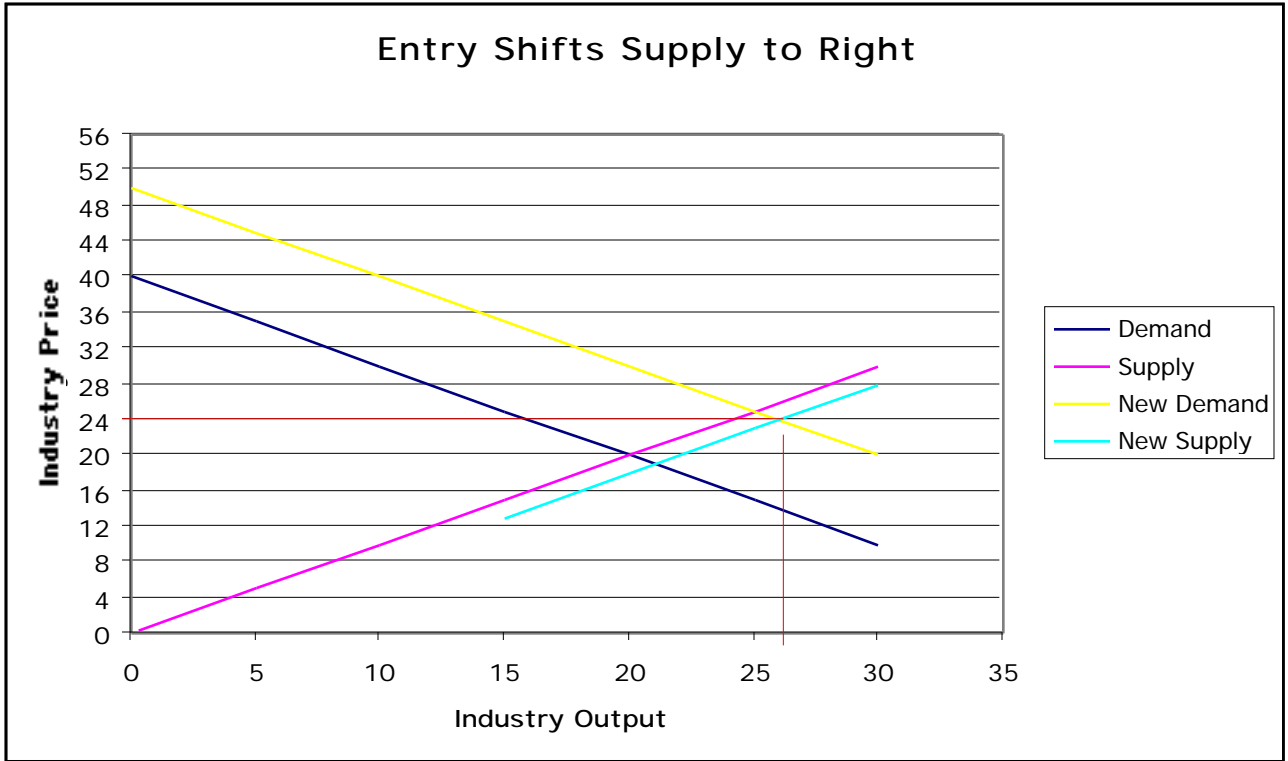
Firms respond to positive profit by entering the market. Supply shifts out to right, driving down the market price. New equilibrium will be established where $P=20$ and firms again earn zero economic profit.



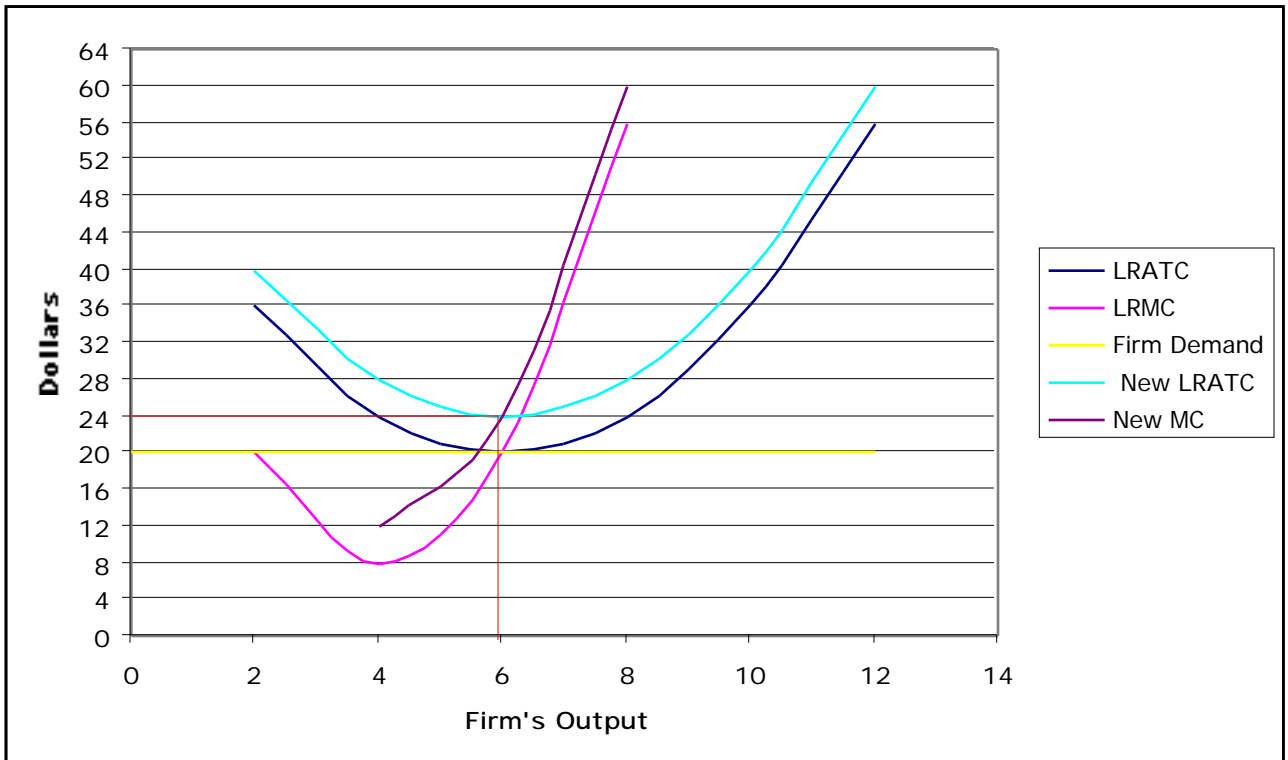


- d) Is it possible for the new long-run equilibrium price to be above the original long-run equilibrium price? Explain in words and with a diagram.

If the industry is an increasing cost industry then as the number of firms increases, input prices are bid up. Hence, the cost curves of an individual firm shift up. The long run supply in this case is upward sloping and the new long run equilibrium price will be above the original price.



But as number of firms expands, the cost curves of the individual firm shift up:



So new long run equilibrium price is higher than original. (\$24 in my picture.)