Concordia University
Department of Economics

ECON 201 – INTRODUCTION TO MICROECONOMICS
Winter 2011

COMMON FINAL EXAMINATION VERSION 1

FIRST NAME: _____ LAST NAME: _____

STUDENT NUMBER: _____

Please read all instructions carefully.

1. The exam consists of two parts.
   (i) Part I: 35 multiple-choice questions (35 marks);
   (ii) Part II: Choose 5 out of 6 long questions (65 marks).

2. Write your answers for the multiple-choice questions on the computer scan-sheet with a **pencil**. For Part II, write all your answers on this exam. Do not use additional booklets.

3. You are allowed to use a non-programmable calculator and a dictionary. You may use either pen or pencil to provide your answers for Part II.

Grades:

Part I: _____

Part II: _____

Total: _____

Part I: Multiple Choice Questions. Write your answers on the computer sheet in PENCIL (Total=35 marks).

1. It has been observed that university enrolment in Canada is higher during periods of high unemployment. A possible explanation for this is that
   a. during periods of high unemployment, professors teach better.
   b. when prospects for getting a job are poor, the opportunity cost of getting a job is lower.
   c. when prospects for getting a job are poor, the opportunity cost of doing nothing is higher.
   d. during periods of high unemployment, tuition fees are reduced.
   e. **when prospects for getting a job are poor, the opportunity cost of going to university is lower.**

This production possibilities schedule shows how much cotton and cocoa can be produced in Peru and Brazil with one unit of equivalent resources.

TABLE 1

	Cotton (bales)	Cocoa Beans (bushels)
Peru	2	4
Brazil	1	6

2. Refer to **Table 1**. Compared with Peru, Brazil has:
   a. an absolute, but not a comparative, advantage in the production of cocoa beans.
   b. an absolute advantage in the production of cotton.
   c. **an absolute and a comparative advantage in the production of cocoa beans.**
   d. a comparative but not absolute advantage in the production of cocoa beans.
   e. an absolute and a comparative advantage in the production of cotton.
3. Suppose that in June, 2006, 100 000 cell phones were sold at a price of $30 each. And in June, 2007, 200 000 cell phones were sold at a price of $50 each. One possible explanation for this is that from 2006 to 2007 the _____ curve shifted to the _____
   a. supply; right.
   b. demand; left.
   c. supply or demand; right.
   d. **demand; right.**
   e. supply; left.
4. Which of the following statements would you expect to be true about the demand elasticities for cornflakes and food?
   a. Because cornflakes are food, but not all food is cornflakes, cornflakes would have a lower price elasticity of demand.
   b. **Food has a lower price elasticity of demand because it is more broadly defined.**
   c. Because cornflakes are food, cornflakes would have the same price elasticity of demand as food.
   d. Food has a higher price elasticity of demand because it is a necessity.
   e. Compared with food, cornflakes have a lower price elasticity of demand because it is specifically defined.
5. Suppose you are shown two intersecting demand curves that are drawn on the same scale. At the point of intersection, one of the demand curves is steeper than the other. Which of the following could explain the difference in slopes?
   a. The flatter one is for a good with no close substitutes.
   b. The steeper one has a higher income elasticity of demand.
   c. It is not possible to compare the slopes of different demand curves.
   d. The steeper one is probably the demand curve for a luxury good.
   e. **The steeper one applies for the short run whereas the flatter one applies for the long run.**

6. Suppose the current level of output of some good is X. If market demand is inelastic at that quantity, total expenditure on this product would be higher if output was
    a. Kept constant.
    b. Less than X.
    c. Maximized.
    d. Minimized.
    e. Greater than X.
7. Suppose the market supply curve for some good is upward sloping. If the imposition of an excise tax causes no change in the equilibrium quantity sold in the market, the good's demand curve must be _____, meaning that the burden of the tax has fallen completely on the _____.
    a. Unit elastic; government.
    b. Horizontal; firms.
    c. Vertical; consumers.
    d. Horizontal; consumers.
    e. Vertical; firms.
8. We can expect that the income elasticity of demand for gourmet catered meals would be _____ the income elasticity of demand for meals from a fast-food restaurant.
    a. Not comparable to.
    b. Equivalent to.
    c. Equal to.
    d. Lower than.
    e. Higher than.
9. The price of apples at a local market rises from $2.95 to $3.05 per kilo, and as a result the quantity of oranges that households purchase increases from 3950 to 4050 kilos per week. The arc cross-price elasticity is
    a. -1.33.
    b. -0.75.
    c. 0.75.
    d. 1.33.
    e. 1.5.

TABLE 2
Demand and Supply Schedules for Chocolate Bars

Price ($)	Quantity Demanded (thousands per week)	Quantity Supplied (thousands per week)
2.00	1500	2100
1.80	1600	2050
1.60	1700	2000
1.40	1800	1950
1.20	1900	1900
1.00	2000	1850
0.80	2100	1800
0.60	2200	1750
0.40	2300	1700

10. Refer to **Table 2**. Suppose that as a public health measure the government wants to reduce the number of chocolate bars that children consume. To achieve this outcome the government could implement which of the following policies
    a. Impose a price ceiling of $1.80.
    b. Impose a price ceiling of $2.

c. Impose a price floor of $1.80.

d. Impose an equilibrium price of $1.2.

11. Steel is an important input to the production of automobiles. Tires and automobiles are used together. What will occur in the market for tires when there is an increase in the price of steel

a. price falls, quantity falls.

b. price rises, quantity rises.

c. no change in price or quantity occurs.

d. price falls, quantity rises.

e. price rises, quantity falls.

12. Assuming that the long-run supply of housing is highly elastic, the imposition of binding rent controls will lead to

a. no significant change in the housing shortage over time.

b. only a temporary housing shortage.

c. the price of rental housing to revert back to its free-market equilibrium level.

d. a worsening of the housing shortage over time.

e. a reduction in the housing shortage over time.

13. The deadweight loss associated with output less than the competitive level can be determined by

a. subtracting the competitive level producer surplus from the producer surplus associated with less output.

b. subtracting the consumer surplus from the producer surplus associated with less output.

c. summing the consumer and producer surplus associated with less output.

d. summing the change in the total consumer and producer surplus, and the change in government revenue ,from moving from the competitive level of output to less output.

14. In a free market, goods with positive externalities will:

a. be overproduced in the market place.

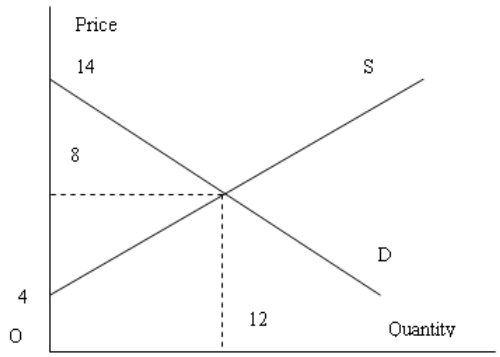
b. have the marginal valuation of the externality reflected in their price.

c. be produced to the point at which the marginal social benefit equals the marginal social cost of the last unit produced.

d. be under-produced at the market equilibrium.

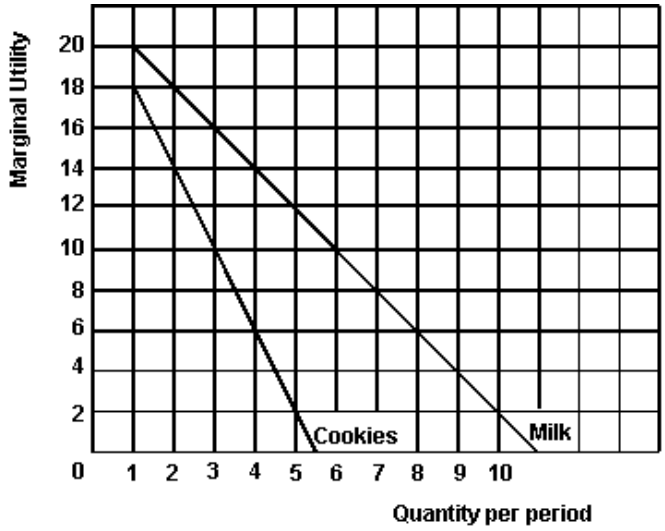
Figure 1

Figure 5.2



15. In figure 1, the dollar value of the total economic surplus is:
    a. 24.
    b. 36.
    c. 48.
    d. 60.
16. Suppose again that Yuri buys soy milk and oranges and has not yet exhausted his budget. His MU of an additional carton of soy milk is 20 and its price is $1.25, whereas his MU for an additional orange costing 50 cents is 7. From this situation, we can deduce that he should:
    a. buy more oranges.
    b. reduce his consumption of soy milk.
    c. buy more soy milk.
    d. divide his budget equally between soy milk and oranges.

Figure 2



17. Referring to figure 2, if the price of milk is $2, the price of cookies is $1 and the budget is $7, how many will be purchased if the consumer wishes to maximize total utility.
    a. 0 milk and 7 cookies.
    b. 1 milk and 5 cookies.
    c. 2 milk and 3 cookies.
    d. 3 milk and 1 cookie.
18. A demand curve slopes downward because
    a. since the marginal utility increases with increased consumption, people will be eager to buy more at lower prices.
    b. since the marginal utility decreases with increased consumption, the price must fall in order to induce people to buy more.
    c. since total utility increases with increased consumption, a lower price is necessary to encourage increased production.
    d. lower prices mean a lower consumer surplus which will encourage increased consumption.
19. If you are a risk-averse person and have the chance to play a game where the odds of winning $2.00 are 20% and the odds of losing $1.00 are 80%:
    a. you will be willing to play the game because of the even odds.
    b. you will play the game only if the game's odds are made uneven.
    c. you will be willing to play the game because this is a fair gamble.
    d. you may or may not play the game, depending on how you balance the love of risk with the probability of loss on average.

e. you will not play the game as it is not a favorable one.

20. It is frequently difficult to buy natural disaster insurance because:
    a. the insurance companies are unfair to people living in areas which are natural disaster prone.
    b. risk averse people do not like insurance.
    c. the individual risks are not independent.
    d. Insurance companies do not like to do business with risk averse people.
    e. the individual risks are independent.
21. A fair coin is to be tossed. If it lands heads up, the player wins $2; if it lands tails up, the player loses $2. Out of the three following people:
    • Person A is indifferent between playing and not playing the game.
    • Person B is willing to pay 15 cents to participate in each coin toss.
    • Person C must be paid 10 cents to participate in each coin toss.
    Which person characterizes a risk-averse individual?
    a. both person B and C.
    b. person A only.
    c. person B only.
    d. person C only.
    e. none of the persons
22. It is almost always the case that initial plant size expansion leads to a decrease in cost. This is due to:
    a. technological improvement.
    b. increase in capital stock.
    c. technology exhibiting economies of scale.
    d. due to A and B both.
    e. none of the above.
23. Which of the following statements about the relationship between marginal product and average product is correct?
    a. when average product exceeds marginal product, marginal product must be rising.
    b. average product equals marginal product when marginal product is at its maximum.
    c. when marginal product is falling, average product is falling.
    d. average product equals marginal product at marginal product's lowest point.
    e. when marginal product exceeds average product, average product must be rising.
24. Assuming marginal product increases at the initial level of production and starts to decrease eventually after reaching its peak implies:
    a. average variable cost curve increases initially then reaches a peak and after that starts to decline.
    b. average variable cost curve initially declines, reaches a minimum and then will steadily rise up.
    c. what pattern followed by the AC curve depends on the pattern of marginal cost curve which in turn is related to marginal product.
    d. average cost curve pattern has nothing to do with marginal cost curve.
    e. both B and C are correct.
25. A firm should remain in business in the short run:
    a. if the firm's capital cost is sunk and it can cover part of this sunk cost above the variable costs.
    b. if the firm's capital cost is fixed and it can cover part of its fixed costs above the variable costs.
    c. no matter whether its capital cost is sunk or fixed, so long the firm can cover its variable cost it will remain in business.
    d. if and only if the firm can cover its total cost in the short run.
    e. whether or not the capital cost is sunk or fixed is irrelevant to make such decision in the short run.
26. If an industry is composed of two firms (temporarily) and they have short-run marginal cost curves of the form MC = 4 + 0.1Q and MC = 4 + 0.2Q respectively, how much will each supply if the going price is $8?
    a. 10 and 30.
    b. 20 and 40.
    c. 20 and 20.
    d. 40 and 20.
    e. 30 and 40.
27. If firms enter a competitive industry, the
    a. new firms make negative profit.

b. **industry supply curve shifts outward.**
c. price of the product rises.
d. output of the industry decreases.
e. profits of the old firms stay the same.

28. The perfectly competitive firm's short run supply curve is the upward-sloping part of its
    a. average variable cost curve, at all points above the point of AVCmin.
    b. marginal cost curve, at all points above the point of AFCmin.
    c. marginal revenue curve, at all points above the point of minimum average revenue.
    d. marginal revenue curve, at all points above the point of minimum average total cost.
    e. marginal cost curve, at all points above the point of AVCmin.
29. A price-discriminating monopoly airline company would like to charge the highest price to
    a. commercial users since they have lower price elasticity of demand than all.
    b. industrial users because they are more price sensitive.
    c. household users since they travel less on business.
    d. students since they have a very high price elasticity of travel demand.
30. Inefficiency results from monopoly because
    a. there is no competition to force down costs.
    b. high monopoly prices are not equitable.
    c. a monopoly underproduces relative to the ideal at which society's marginal cost=marginal benefit.
    d. it makes quality products that cost a lot.
    e. all of the above.
31. Monopolization of an industry typically occurs as a result of
    a. existence of barriers to entry into the industry.
    b. greed by the seller.
    c. lack of interest by potential competitors.
    d. lack of profit to be made.
    e. inadequate regulation by government.
32. Excess capacity in monopolistically competitive firms is caused by
    a. rival firms entering the industry and reducing the demand for the products of the firms already in the industry.
    b. the fact that each firm attempts to maximize profits.
    c. cost curves being higher than they are under perfect competition.
    d. the waste associated with many slightly differentiated products serving almost the same purpose.
    e. **the fact that each firm faces a demand that is not perfect elastic.**
33. Under monopolistic competition, long-run economic profits tend toward zero because of
    a. economic inefficiency.
    b. product differentiation.
    c. the downward-sloping demand curve facing each firm.
    d. the lack of barriers to entry.
    e. excess capacity.
34. Suppose that the typical firm in a monopolistically competitive industry earns an economic/supernormal profit and new firms enter. This causes:
    a. the firm's demand curve to shift to the right.
    b. the firm's average total cost curve to shift upward.
    c. the industry demand curve to shift to the left.
    d. the firm's demand curve to shift to the left.
    e. none of the above
35. In a strategic choice situation, a 'dominant strategy' is one
    a. that ensures the minimum cost of production.
    b. that ensures the maximum cost of production.
    c. that is the best strategy, regardless of the opponent's strategy.
    d. that yields the lowest profit to the opponent.
    e. that yields equal profit to the opponent.

Part II: Answer FIVE of the following SIX questions. If more than five questions are answered, only the first five will be marked (Total=65 marks).

Question # 1 (13 marks)

Consider a firm with a total cost curve given by TC = Q^2 + Q + 49 and a marginal cost given by MC = 2Q + 1. (Don't worry about the long run – short run distinction here, there is only one possible size of firm.)

(i) Derive the average cost curve (AC) from the TC curve above and write down its mathematical form. (2 marks)
AC = Q + 1 + 49/Q

(ii) Illustrate on a diagram the relationship between the AC and MC curves that you now have. (2 marks)
U shaped AC plus MC to scale will do the trick

(iii) If this firm is representative of all firms in a perfectly competitive market, and the market is in equilibrium (no economic/supernormal profit), how much output will each firm produce? (2 marks)
Q = 7

(iv) What is the equilibrium price in the market? (2 marks)
P = $15

(v) If the demand curve in the market is given by P = 36 - 0.01Q how much of the good will be supplied by all firms combined? (2 marks)
2100 units

(vi) How many firms are there in the industry? (3 marks)
300

Question #2 (13 marks)

A consumer has an income of $104. The price of Y is Py = $8.

(i) The individual is observed to buy 4 units of Y and 6 of X. What is the price of X? (2 marks)
$12

(ii) Draw the budget constraint with intercepts calculated and illustrate the equilibrium by including the relevant indifference curve. (3 marks)
Intercepts are 8.67 for good X and 13 for good Y.

(iii) Now suppose the price of X falls to $6. What is the numerical value of the marginal rate of substitution at the new equilibrium? (Hint: it will be the same as the slope of the budget constraint). (3 marks)
3/4

(iv) If he purchases the same amount of Y as before the price change, how many units of X will he purchase after the price change? Illustrate the equilibrium graphically. (3 marks)
12 units

(v) Suppose he is prevented from buying more than 8 units of X. Illustrate the equilibrium (after the price decline) by drawing the appropriate indifference curve and budget constraint. (2 marks)
BC will drop down at X = 8; equilibrium at the corner.

Question #3 (13 marks)

Consider a market where the domestic demand is given by P = 56 – 0.02Q and domestic supply is given by P = 12 + 0.03Q. International supply is given by P = 20. (If you get a fraction, you can round it up.)

(i) Illustrate the market on a diagram and compute the equilibrium price and quantity where there is free trade. (3 marks)
Q = 1800, P =20

(ii) Compute the producer surplus for domestic suppliers in this scenario. (2 marks)
Half of 8*266.67= 1066.67

(iii) If international trade were forbidden illustrate the price and quantity traded in the market, compute the price and quantity, and compute the producer surplus. (3 marks)
Q = 880 P = 38.4 PS= $11616.

(iv) Suppose trade does take place but that the government imposes a tax on imports of $4 per unit. Compute the new equilibrium price and the quantity supplied by domestic producers. (3 marks)
At $24 domestic S = 400.

(v) If you were a domestic supplier, what would you prefer the most - free trade, a tax on imports or no trade? Why? (2 marks)

No trade, because producer surplus is greatest there.

Question #4 (13 marks)

Generally, homeowners prefer to live in an unarmed society, but would buy a gun if they know criminals are armed. And criminals prefer to buy a gun as a tool in their trade – it enhances their "productivity" and hence maximizes their "profit". Suppose the table below outlines the outcomes for homeowners and criminals, where the outcomes for each group are ranked as 1, 2, 3, 4, where the most preferred outcome is 1 and the least preferred is 4. The first number is for homeowners, the second for criminals.

	CRIMINALS		
HOMEOWNERS		NO GUNS	GUNS
	NO GUNS	1, 2	4, 1
	GUNS	2, 4	3, 3

(i) Do homeowners have a dominant strategy? Do criminals have a dominant strategy? What is the Nash equilibrium outcome of the game? (2 marks)

The homeowners do not have a dominant strategy, criminals do – to buy guns. Knowing the dominant strategy of criminals, homeowners will buy guns and the Nash equilibrium is at (3, 3).

(ii) Is there a mutually preferred outcome to the Nash equilibrium? (2 marks)

Yes, both will prefer (1,2) to the Nash equilibrium.

(iii) How does this situation resemble a Prisoner's Dilemma? (2 marks)

It resembles Prisoner's Dilemma, because both players can get a better outcome – (1,2), but are instead stuck at (3,3) as an equilibrium.

(iv) If criminals pre-commit not to have guns, can the mutually preferred outcome be achieved? Will the pre-commitment be credible? (2 marks)

If criminals pre-commit not to buy guns, then the best response of homeowners is to not buy guns as well, and the mutually beneficial outcome (1,2) is achieved. This pre-commitment is not credible though, as criminals would prefer to buy guns once homeowners do not have guns and thus move to an outcome (4 ,1). Knowing this, homeowners will not believe the commitment of criminals to be credible.

(v) Explain the role of a gun restriction law and how it will modify the outcome of the game, if it is strictly applied and is efficient in achieving its goals? (2 marks)

Strict gun restriction law, if efficiently applied, serves as a credible commitment and tries to achieve the (1, 2) mutually beneficial outcome.

(vi) Would criminals find it in their best interest to support a gun restriction law? (3 marks)

Criminals would find it in their best interest to support the gun restriction law, because that will move them from the Nash (3,3) outcome to the (1, 2) outcome, i.e. they are better off with the laws as they go from outcome 3 to outcome 2 for them. Thus, criminals would rather fight a non-armed homeowner, than risk fighting an armed one. Same applies to homeowners.

Question #5 (13 marks)

A large share of the world supply of diamonds comes from Russia and South Africa. Suppose that the marginal cost of mining diamonds is constant at MC = $2000 per diamond. For simplicity, marginal cost = average total cost. The demand for diamonds is described by the following schedule:

Price	Quantity	**TR**	**MR (per diamond)**
$9 000	4 000	**36,000,000**	------
8 000	5 000	**40,000,000**	**4,000**
7 000	6 000	**42,000,000**	**2,000**
6 000	7 000	**42,000,000**	**0**
5 000	8 000	**40,000,000**	**-2,000**
4 000	9 000	**36,000,000**	**-4,000**
3 000	10 000	**30,000,000**	**-6,000**
2 000	11 000	**22,000,000**	**-8,000**
1 000	12 000	**12,000,000**	**-10,000**

(i) If there were many, many suppliers of diamonds, what would be the price, quantity and profits (2 marks)?
Ans: P = MC, so quantity supplied=11,000, P=$2,000 and π=0.

(ii) Fill in the table above for TR and MR (per diamond) (2 marks).
Ans: See above.

(iii) If there were only one supplier of diamonds, what would be the price, quantity and profits (2 marks)?
Ans: MR=MC, and MR=$2,000 at Q=6,000, P=$7,000 and π=($7,000-$2,000)*6,000=$30,000,000.

(iv) If Russia and South Africa formed a cartel, what would be the price and quantity? If the countries split the market evenly, what would be South Africa's production and profit? What would happen to South Africa's profit if it increased its production by 1,000 while Russia stuck to the cartel agreement? (5 marks)
Ans: They would jointly behave as a monopolist and charge P=$7,000, Q=6,000 and π=$30,000,000. If they split the profits evenly, then each produces Q=3,000 and earns $15,000,000. However, if South Africa produces Qs=4,000 and Russia sticks to Qr=3,000, then the total quantity supplied is 7,000. At this Q, the price is $6,000. South Africa will earn π=($6,000-$2,000)*4,000=$16,000,000, while Russia will earn π=($6,000-$2,000)*3,000=$12,000,000.

(v) Use your answer to part (iv) to explain one reason why cartel agreements are often not successful? (2 marks)
Ans: Because any previous tacit agreement to cut back production to keep prices high will not be honoured. Each firm has the incentive to cheat on the other, i.e., "agree" to cut back production and then subsequently raise output. The cheater earns more profits, and the cheated loses. The "cheated" knows this, it will cheat simultaneously.

Question #6 (13 marks)

Suppose that both Tom and Sara like to grow tomatoes and green peppers in their backyards. In a 30-day month, Tom can grow in his backyard either 80 tomatoes and 0 peppers or 0 tomatoes and 40 peppers or any other combination lying on the line between these two points. In the same amount of time, Sara can grow in her backyard either 40 tomatoes and 0 peppers or 0 tomatoes and 8 peppers or any other combination lying on the line between these two points.

(i) No trade: Assume that Tom and Sara both spend half of their time to produce tomatoes and the other half of their time to produce peppers. How many tomatoes and peppers can each consume? Draw two separate graphs for their PPFs, with tomatoes (T) on the vertical axis and peppers (P) on the horizontal axis (3 marks).
Ans: Tom consumes (40T, 20P), while Sara consumes (20T, 4P).

(ii) If they start trading with each other, what should Tom sell and what should Sara sell? Explain by calculating the opportunity costs of producing peppers and tomatoes for Tom and Sara, respectively (3 marks).
Ans: Tom should sell peppers, while Sara should sell tomatoes. This is because Tom has a lower OC than Sara in producing peppers (Tom $\rightarrow$ 1P=2T; Sara $\rightarrow$ 1P=5T), while Sara has a lower OC in producing tomatoes (Tom $\rightarrow$ 1T=0.5P; Sara $\rightarrow$ 1T=0.2P).

(iii) Following from (ii): Suppose Tom and Sara each specializes in producing only the good in which she/he has a lower opportunity cost. Also suppose Tom and Sara exchange 5 peppers for 15 tomatoes with each other (you have to determine who sells peppers and who sells tomatoes). Calculate the new consumption bundles of Tom and Sara and plot them on your graphs in (i) (3 marks).
Ans: Tom consumes (15T, 35P), while Sara consumes (25T, 5P).

(iv) Following from (iii): Show that given Tom's and Sara's consumption quantities of tomatoes, they could not have produced/consumed the corresponding quantities of peppers you have found in (iii) in the absence of trade (4 marks).
Ans: Tom gains because if he were to produce 15T himself (5.625 days out of 30), his remaining time (24.375 days) can only be used to produce 32.5P. Now he enjoys 35P.

As for Sara, if she were to produce 25T (takes her 18.75 days), her remaining time (11.25 days) can only be used to produce 3 P. Now she has 5P, therefore she also gains.

The End