Question (1) Neo loves traveling. Supposed he has two choices of destination, Thailand and Maldives which costs him 3,000 baht and 5,000 baht respectively. His utility received from traveling to Maldives is twice compared to traveling to Thailand. Answer the following questions.

(1.a) If Neo has 10,000 baht of budget, how many times of each destination he will choose to travel and why? Draw his indifferent curve and budget line to analyze his decision and indicate details on the graph.

(1.b) If his budget increases to 20,000 baht, draw his income-consumption curve (ICC). Also plot his income demand of traveling in Thailand, find its slope and explain.

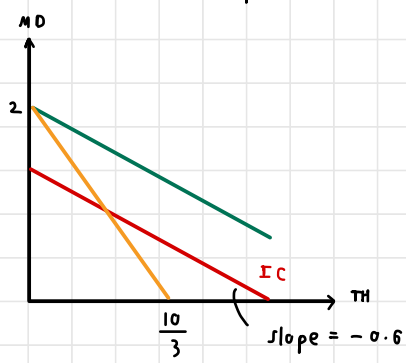
$2MU_X = MU_Y$

$\frac{MU_X}{MU_Y} = \frac{1}{2} = 0.5$

$3000X + 5000Y = 10,000$

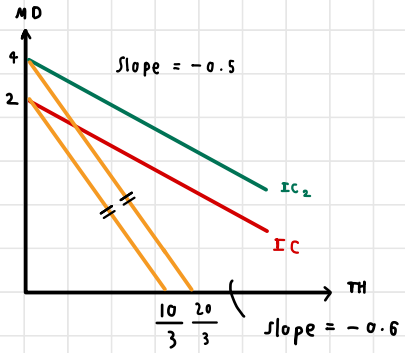
Slope BL $= \frac{3}{5} = 0.6$

slope BL ชันกว่า slope IC



Neo will only travel to Maldives only two times since $\frac{MU_X}{MU_Y} < \frac{P_X}{P_Y}$ which mean slope IC < slope BL

∴ to get higher utility Neo should increase trip that travel to Maldives and decrease trip that travel to thailand which end up travelling only Maldives.



income demand

Question (2) Consider a long-run production in which there are only two inputs labor and capital, and the input prices for labor and capital are wage (w) and interest rate (r), respectively. Suppose that at the equilibrium levels of labor and capital (L^*, K^*), the marginal product of labor (MP_L) and marginal product of capital (MP_K) are 6 and 8, respectively.

(2.a) Calculate the marginal rate of technical substitution (MRTS), state the cost-minimization conditions of this firm, given that the required output is fixed at Q_0. If the market wage rate (w) is \$3, what is the interest rate at the equilibrium?

(2.b) Suppose now that the wage rate (w) increases to \$4, *ceteris paribus*, draw a diagram to illustrate the changes in the cost-minimizing combination of inputs.

2 a. $MRTS = -\frac{MP_L}{MP_K} = \frac{-6}{8} = -0.75$ * isoquant ⇒ เส้นโค้ง

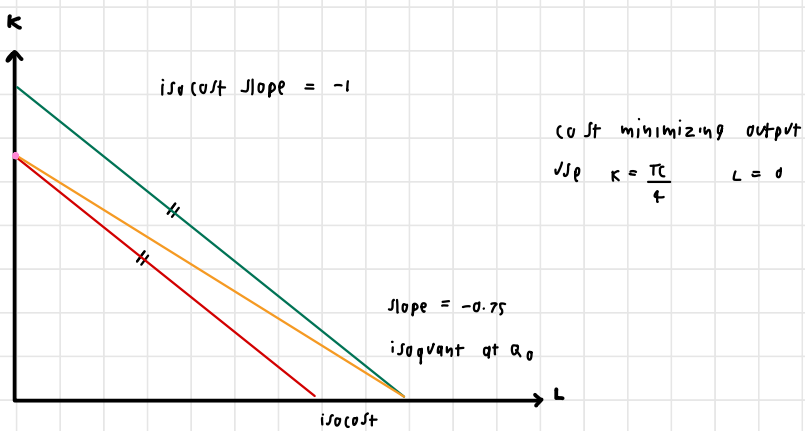
at cost minimization $\frac{MP_L}{w} = \frac{MP_K}{r}$

$\frac{6}{3} = \frac{8}{r}$

$r = 4$

2 b. | | | |
|---|---|---|
| w ↑ | → | 4 |
| r | = | 4 |

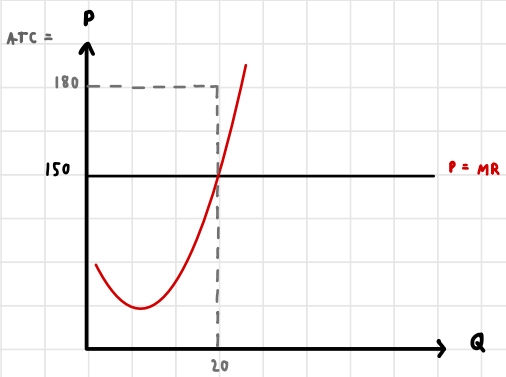
isocost slope = -1



Question (3) Consider a perfectly competitive market, in which the current equilibrium price is 150 baht per unit.

(3.a) Suppose that a firm in this market sells 20 units of its output. State the profit-maximizing condition of this firm and draw a diagram to illustrate how the equilibrium quantity is determined.

(3.b) At this equilibrium quantity of 20 units, suppose that the firm's average total cost is 180 baht and its average fixed cost is 60 baht. Calculate this firm's average variable cost, total revenue, total cost, and profit.



ATC = 180 , AFC = 60

AVC = 120
(ATC − AFC)

total revenue = 3000

TC = ATC · Q
= 180 · 20
= 3600

π = TR − TC
= 3000 − 3600
= −600

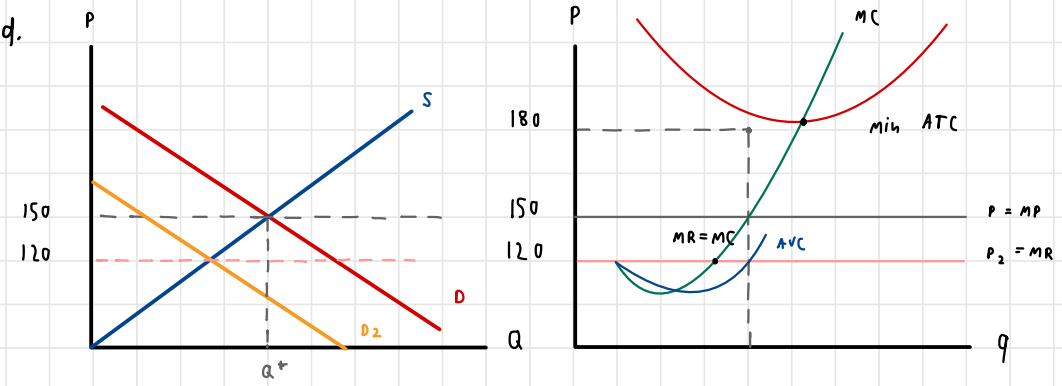
(3.c) From (3.b), should this firm stay in the market in the short run? Justify your answer.

(3.d) Suppose now that the market demand decreases and the market price decreases to 120 baht per unit. Draw two diagrams to illustrate: (i) the change in the equilibrium price and quantity in the market, (ii) how the change in the market price affects the firm equilibrium quantity and profit. Would your answer from part c. change?

3c. Yes, this firm should stay in the market because P > AVC so that mean total revenue can cover some of fixed cost and variable cost. This firm only loss some of the fixed cost so they should stay in the market.

To compare with shut down condition, this firm will doesn't get any revenue and variable cost so this firm will loss its fixed cost.

3d.



1. D ↓ → P ↓ (150 → 120)
2. MR_2 120 = MC → q ↓ [20 to q_2]
3. Since P = 120 still > min AVC (firm still operate)

Question (4) House and Land (HL) is the monopolist in a luxury housing market. It is a very efficient firm in which workers can construct houses with constant marginal cost and average cost. The demand and cost functions for HL are given as follows. (P is in million-baht unit).

$$P = 60 - 0.6Q$$

$$MC = AC = 24$$

(4.a) Derive the marginal revenue function. Draw a diagram to illustrate the demand, marginal revenue, marginal cost, and average cost.

(4.b) State the profit-maximizing condition for HL and determine the optimal units of houses. Also, indicate the profit in the diagram, and explain how this profit can be derived.

(4.c) The government tries to encourage more people to have access to luxury houses, so they launch a policy forcing HL to sell their houses at the ideal price. Draw another diagram to indicate the ideal price and determine the corresponding quantity at this price. Illustrate the social welfare before and after the intervention in the diagram and discuss.

4 a) $TR = P \cdot Q$

$(60 - 0.6Q)\,Q$

$TR = 60Q - 0.6Q^2$

$\frac{\Delta TR}{\Delta Q} = MR = 60 - 1.2Q$

$MR = MC$

$60 - 1.2Q = 24$

$Q = 30$

ในรูป $Q = 30$ ล้านหน่วย

$P = 60 - (0.6 \times 30)$

$= 48$

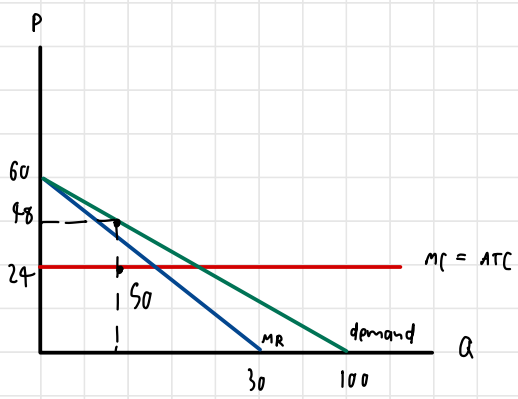
$\pi = TR - TC$

$= (P \times Q) - (ATC \times Q)$

$= (P - ATC)\,Q$

$= (48 - 24)\,30$

$= 720$



4c if government force P = 24

$24 = 60 - 0.6Q$

$Q = 60$

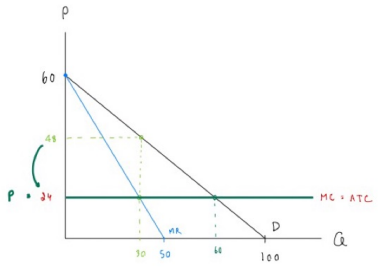
[ideal Price P = MC
competitive equilibrium]

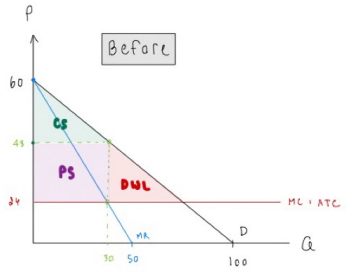
(4.c) if Gov force P = 24

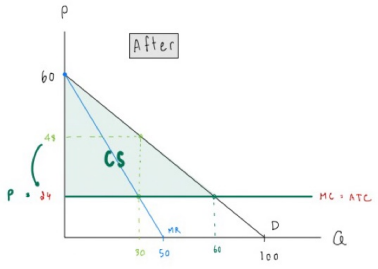
$\therefore 24 = 60 - 0.6Q$

$0.6Q = 36$

$Q = 60$







Question (5) Consider this payoff matrix for Mook and Mix, they are competitors in an oligopoly sweetened product. Mook's payoff (bold) and Mix's payoff (regular) in this table is in thousand(s) baht unit. Discuss how you figure out a Nash equilibrium in this game.

		Mix (2)		
		Boba tea (B)	Ice-cream (C)	Donut (D)
Mook (1)	Boba tea (B)	**1**, 2	**3**, 5	**2**, 1
	Ice-cream (C)	**0**, 4	**2**, 1	**3**, 0
	Donut (D)	**-1**, 1	**4**, 3	**0**, 2

ปัญหาแนวของ ตัวหลัง : ถ้า (1) เลือก ... (2) จะเลือก ...

ปัญหาแนวตัวคูณ ถ้า (2) เลือก ... (1) จะเลือก ...

if Mook ชอบ (B) Mix choose (C)

if Mook ชอบ (C) Mix choose (B)

if Mook ชอบ (D) Mix choose (C)

if Mix ชอบ (B) Mook choose (B)

if Mix ชอบ (C) Mook choose (D)

if Mix ชอบ (D) Mook choose (C)

∴ Nash eq'lm คือ [D, C] #