

$$MR = P$$

1. Assumed both a product market and a labor market are perfectly competitive, a table of marginal product is given below.

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$$MRP = MR \cdot MP$$

$$VMP = P \cdot MP$$

Unit of labor	MPL	MRP
2	12	144
3	8	96
4	6	72
5	4	48
6	2	24

$$P = 12$$

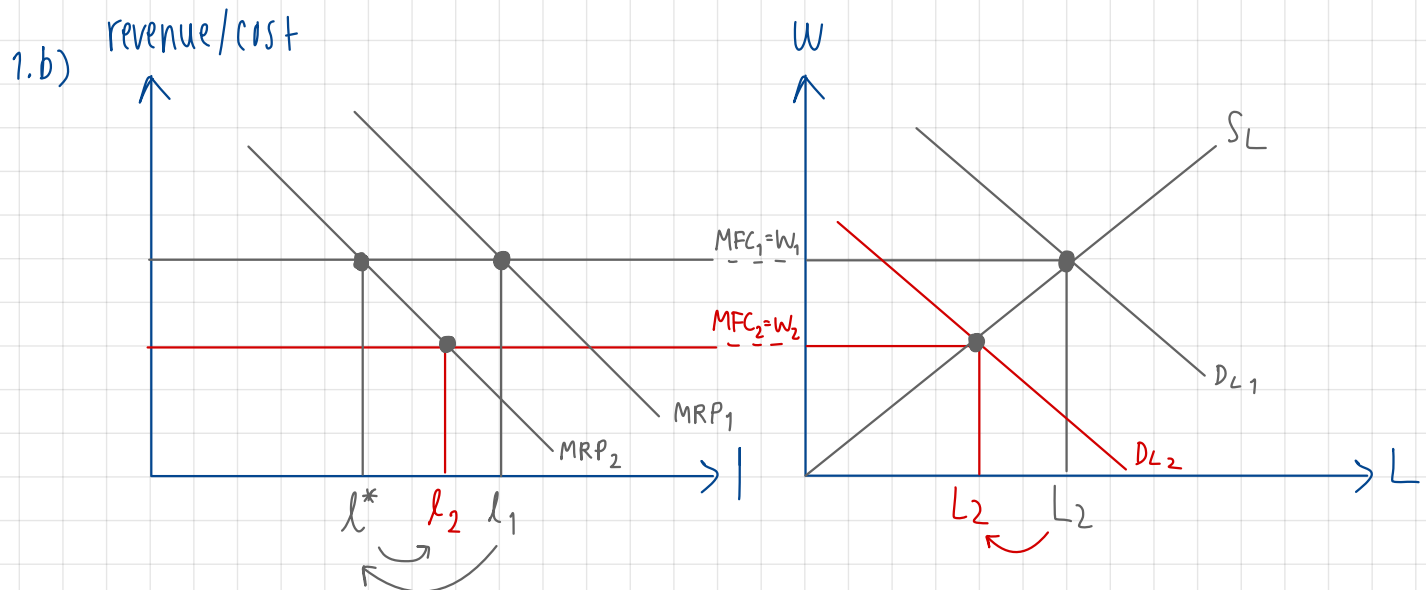
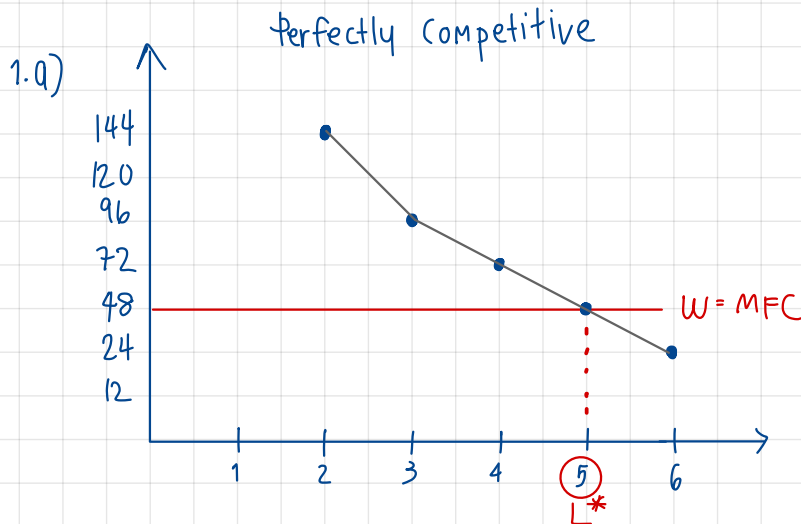
$$W = 48$$

This product can be sold in the market for \$12 each while labor wage is \$48, answer the following questions clearly.

$$W = MFC$$

1.a) Figure out how many units of labor this firm will choose as input for its production to maximize profit. Illustrate a graph to support your answer and explain.

1.b) Supposed that there is a sudden economic recession driving consumers' purchasing power downward, what would happen to the units of labor hired by this firm? Support your answer with illustrations that also show a connection between product market and labor market.



2. In a telecommunication sector where there are 3 companies namely A, D and T, at first, these companies can capture 50%, 20% and 30% of market share respectively. All of them share the same marginal cost of \$0.2 on average for a unit of service per minute. Answer the following questions $MC = 0.2$

2.a) If company A can charge users for \$1 on average for a unit of service, figure out the Lerner's index for company A.

2.b) Figure out the HHI index for this industry at the current state.

2.c) If D and T decide to merge their companies, figure out the new HHI index.

$$2.a) \text{ Lerner's index } L = \frac{P - MC}{P} = \frac{1 - 0.2}{1} = 0.8$$

$$2.b) H = \sum_{i=1}^n S_i^2 : (50)^2 + (20)^2 + (30)^2 \\ = 2500 + 400 + 900 \\ = 3800$$

$$2.c) (50)^2 + (50)^2 \\ = 2500 + 2500 \\ = 5000$$

3. Consider these statements and indicate which one of the choices fits with each statement and roughly explain why.

Choices

1. Not a market failure
2. Market power
3. Externalities
4. Public goods
5. Moral hazard
6. Adverse selection

3.a) People feel that price level is hiking.

3.b) Morpheus always hears a loud fight coming from a room next to his.

3.c) Trinity does not receive her full-benefit until her first 3-month of her work position.

3.d) In Chiang Mai, there is no earthquake alarming system.

3.e) Starbucks coffee is more expensive than Amazon coffee.

3.a) Market Power - Price in the market is controlled by monopolist.

3.b) Externalities - Sound from the next room is out of Morpheus control.

3.c) Moral hazard - Being exploited by her Employer

3.d) Public goods - Earthquake alarm is non-excludable and non-rivalry.

3.e) Not a market failure - no relevant to the market failure criteria.