

Past-paper walk-through

Monopsonistic Markets ■ 5.4

eXercise

Questions in this set

- 2025 Set 2 Q2
- 2022 Set 1 Q2

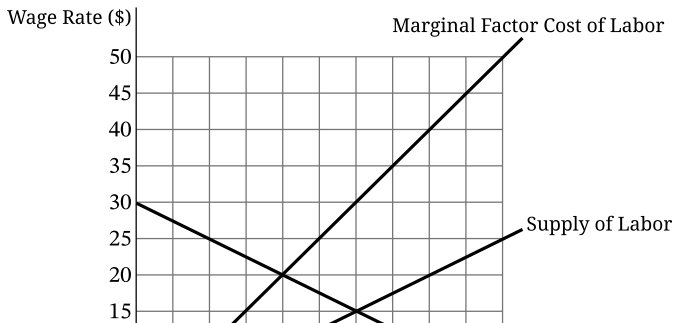
Reading the mark scheme

- **B1** a mark that stands on its own – the point is either made or not.
- **M1** a *method* mark: the right approach, even if the number is wrong.
- **A1** an *answer* mark, and it usually needs its M mark first.
- **C1** a working mark on the way to the answer.
- **//** separates answers the examiner accepts equally.
- **ecf** = error carried forward: a later part is marked on your own earlier answer.
- **owtte** = “or words to that effect” – the wording need not match.

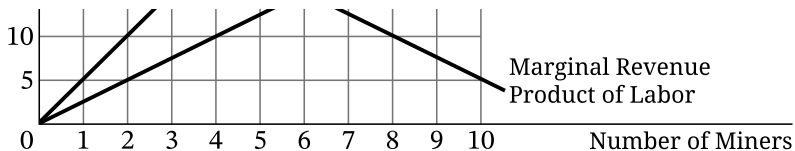
Question 2

2025 Set 2 ■ Q2

2. Quartz Excavations is a profit-maximizing firm and the only employer of miners of quartz in a small town. The graph provided shows the labor market for miners.



Question 2



- A. Identify Quartz Excavations' profit-maximizing number of miners to hire.
- B. Will Quartz Excavations pay its profit-maximizing number of miners a wage rate that is equal to \$15, greater than \$15, or less than \$15? Explain using numbers.
- C. Suppose the government sets a minimum wage (a price floor on wages) at \$25. Calculate the total wage bill for Quartz Excavations at the resulting profit-maximizing number of miners. Show your work.
- D. Suppose that instead of a minimum wage, there is now an increase in the demand for quartz.
 - i. Will the marginal revenue product of miners increase, decrease, or remain the same? Explain.

Question 2

- ii. After the demand for quartz increases, Quartz Excavations hires the new profit-maximizing number of miners. Will the marginal factor cost of the last miner hired be greater than, less than, or equal to the marginal factor cost of the last miner hired before the demand for quartz increased?

Solution 2

(a)

Mark scheme

- The profit-maximizing number of miners is 4 — the quantity of labor at which the marginal revenue product (MRP) of labor equals the marginal factor cost (MFC) of labor.

Solution 2

(b)

Mark scheme

- Quartz Excavations will pay its profit-maximizing number of miners a wage rate that is LESS than \$15. As a monopsonist (the sole buyer of labor), the wage rate it pays is determined by the labor supply curve at the quantity of labor hired, not by the (higher) marginal factor cost curve used to find the hiring quantity. The wage rate associated with hiring 4 miners, read off the labor supply curve, is \$10.

Solution 2

(c)

Mark scheme

- With a binding minimum wage (price floor on wages) of $\$25$, the labor supply curve becomes horizontal at $\$25$ up to the point where it meets the original supply curve, and the firm hires labor where MRP equals this new (horizontal) MFC of $\$25$, which occurs at 2 miners. Total Wage Bill = $\$25 \times 2 = \50 . Show the multiplication as work.

Solution 2

(d)(i)

Mark scheme

- The marginal revenue product (MRP) of miners will INCREASE. An increase in the demand for quartz raises the price (and marginal revenue) of quartz; since $\text{MRP} = \text{marginal product of labor} \times \text{marginal revenue (price) of quartz}$, a higher quartz price raises MRP at every quantity of labor.

Solution 2

(d)(ii)

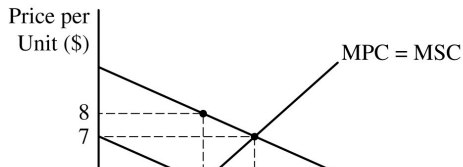
Mark scheme

- The marginal factor cost (MFC) of the last miner hired after the demand increase will be GREATER THAN the MFC of the last miner hired before the demand increase. Because MRP increased, the monopsonist's profit-maximizing hiring quantity increases; moving further up the upward-sloping labor supply curve, the firm must pay a higher wage to attract more workers, and since MFC lies above (and rises faster than) the supply curve for a monopsonist, MFC at the new (larger) quantity of miners is higher than MFC at the original quantity.

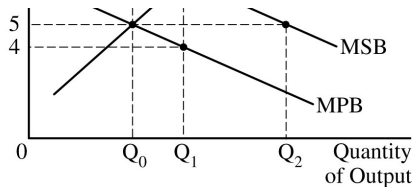
Question 2

2022 Set 1 ■ Q2

2. Bueno is a firm that produces and sells guava, a type of fruit. The market for guava is perfectly competitive. The marginal private benefit (MPB), marginal private cost (MPC), marginal social benefit (MSB), and marginal social cost (MSC) curves are illustrated in the graph provided.



Question 2



- (a) Identify the kind of market failure represented by this graph.
- (b) Using numbers from the graph, identify the marginal external benefit.
- (c) Assume the guava market is in short-run equilibrium and Bueno hires workers in a perfectly competitive labor market at a wage of \$20 per hour. The marginal product of the last worker hired was 6 units of guava per hour.
- Calculate the change in Bueno's profit per hour from the last worker hired. Show your work.
 - Suppose that the government decides to provide a per-unit subsidy to consumers who buy guava. How would the per-unit subsidy affect Bueno's marginal revenue product curve? Explain.

Question 2

(d) Instead of hiring workers in a perfectly competitive labor market, assume Bueno hires workers in a monopsony labor market. Will the number of workers hired increase, decrease, or stay the same? Explain.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

Solution 2

(a)

Mark scheme

- A positive consumption externality (positive externality in consumption): the marginal social benefit of guava exceeds the marginal private benefit (demand) curve, meaning third parties benefit from others' consumption.

Solution 2

(b)

Mark scheme

- The marginal external benefit is \$3 – the vertical (dollar) gap between the marginal-social-benefit curve and the private demand (marginal-private-benefit) curve at the relevant quantity, as read from the graph.

Solution 2

(c)(i)

Mark scheme

- Change in profit per hour $= \text{MRP} - \text{MFC} = (\$5 \times 6) - \$20 = \$30 - \$20 = \10 . Marginal revenue product $\text{MRP} =$ marginal product $\times$ price $= 6 \times \$5 = \30 ; marginal factor cost $\text{MFC} =$ wage $= \$20$ since the labor market is perfectly competitive. Hiring the last worker raised profit per hour by \$10.

Solution 2

(c)(ii)

Mark scheme

- Bueno's MRP curve would shift up (to the right). The per-unit subsidy to consumers increases demand for guava, raising the price received/paid for guava; since $MRP = MP \times P$, a higher guava price raises MRP for each worker, shifting the MRP curve upward.

Solution 2

(d)

Mark scheme

- The number of workers hired will decrease. A monopsony faces an upward-sloping labor-supply curve, so its marginal factor cost MFC lies above (and is steeper than) the supply/wage curve – MFC rises as the firm hires more workers (it must raise the wage paid to ALL workers, not just the marginal one), whereas MFC (=wage) is constant in a perfectly competitive labor market. Since firms hire where $MFC = MRP$, the monopsony's higher MFC at any quantity means it hires fewer workers than a perfectly competitive firm would.